

CA20N
MB
-1994
G23

Government
Publications



GET A GRIP ON GREENING

How the
Ontario Public
Service
handles its
greening



Digitized by the Internet Archive
in 2022 with funding from
University of Toronto

<https://archive.org/details/31761115480162>



GET A GRIP ON GREENING A BEST PRACTICES GUIDE

NOT JUST ANOTHER GREENING GUIDE!

This guide aims to set out in a manageable way the best practices to follow to 'get a grip on greening'. It was prepared as an easy-to-use reference manual for current staff and as an information source for future greening staff. It is a tool to make ministries measurably more self-sufficient in greening.

The guide covers elements in greening ministry workplaces from the basic 3Rs program to the specialised area of composting. It looks beyond the present and suggests ways to keep consideration of the environment part of ministries' business.

Although the audience is primarily an internal one, people involved in greening workplaces in other large organizations may find the guide helpful too.

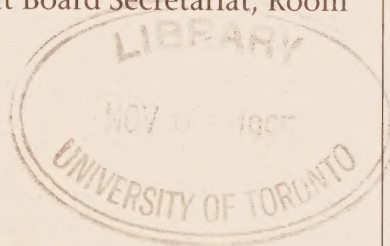
WHY MINISTRIES NEED TO GREEN

The government established the Green Workplace Program in 1991 so Ontario Public Service workplaces would take steps to conserve energy and water, discard as garbage only materials which could not be recycled and put environmental considerations into what is purchased with public funds.

Much has been achieved. Ontario public servants supported the 3Rs programs—even when it meant losing one's garbage bin with the Maximum Green program. Government workplaces are greener by far today, and there is much more to do. Behaviours "greened" at work are being carried home.

Workplace programs such as this are important to our making progress toward a conservator society. This guide is full of suggestions on how to continue making your workplace a greener one.

For more information, please call (416) 327-3777, fax (416) 327-4193 or contact the Green Workplace Program, Management Board Secretariat, Room M2-59, 900 Bay Street, Toronto, Ontario M7A 1N3.



Il existe une version française de ce document.



FOREWORD

*Printed on paper
with 100% recycled
and 75% post-
consumer content.*



GET A GRIP ON GREENING A BEST PRACTICES GUIDE



BIBLIOGRAPHY

Publications used as sources for information for this guide came from:

Green Transportation: Pollution Probe, Toronto; Fitness and Amateur Sport Canada, Government of Canada.

NOTES FOR THE READER

MINISTRY IDENTIFIERS

Throughout the guide, where the use of a proper name is repeated, we have used the following identifiers.

IDENTIFIER	PROPER NAME
ADM	Assistant Deputy Minister
ATG	Ministry of Attorney General
CAO	Chief Administrative Officer
GW	The Green Workplace Program
Max Green	The Maximum Green Program
MBS	Management Board Secretariat
MNR	Ministry of Natural Resources
MOEE	Ministry of Environment and Energy
MTO	Ministry of Transportation
OPS	Ontario Public Service
SMC	Senior Management Committee



■ GET A GRIP ON GREENING A BEST PRACTICES GUIDE

TABLE OF CONTENTS

SECTION	PAGE
1 STRUCTURE FOR GREENING	
Background	1
Effective Organization	2
Greening Roles and Responsibilities	3
The Executive in charge of Greening	3
The Environmental Co-ordinator	3
Green Teams	4
Effective Greening	5
A Work Plan	5
A Communications Plan	5
Reporting Progress	5
3Rs Program—Example of a full ministry greening program	6
Appendix I: Example of a Ministry Greening Structure	
Ministry of Labour	7
Appendix II: Example of a Ministry Greening Work Plan	
Ministry of Labour	8
Appendix III: Example of a Ministry's Environmental	
Code of Practice – Ministry of Health	10
2 COMMUNICATIONS/MOTIVATING STAFF	
Background	11
A Communications Plan	11
Who prepares it?	11
What are the main elements?	11
Budget	12
Getting Senior Management Actively On Side	13
Green Events	14
Earth Week	14
Waste Reduction Week	14
Special Events	15
Motivation	16
Environmental Outreach for Environmental Co-ordinators	16
Examples of a Communication Plan	17
The Green Workplace's Communications Plan	
for the Maximum Green Launch	17
Maximum Green Launch	19
Ministry of Transportation, Downsview	19
'Green' Production Methods	24
Planning and Design	24
Production	24
Distribution and Packaging	24

■ TABLE OF CONTENTS

Sources of Information for Communications Materials	
Internal/External	25
Appendix I: Environmental facts at your fingertips	26

3 WASTE MANAGEMENT

Background	27
The 3Rs – Reduce and Reuse	28
Paper	28
Ways to Reduce Office Paper	28
Electronic Communication	28
E-Mail	28
Electronic Post Office (EPO)	29
Bulletin Boards/LAN	29
Costs Savings/Paper Savings/Minimizing Paper Distribution	
Paper Reduction Technology	30
Photocopiers	30
Printers/Fax Machines/Presentations	31
Ways Everyone can Reuse Paper	31
Cardboard	32
Newsprint	32
Boxboard	33
Plastics	33
Warehouse Materials	34
Packaging	35
Other Items	36
Recycling	36
Recyclable or Non-Recyclable	37
How to set up a Recycling Program (Tips for the	
Environmental Co-ordinator, Facility Manager, Landlord)	37
Research recycling market	37
Getting material to recycler/Equipment Issues/Removal of recyclables	38
Costs	38
Equipment/Storage & Janitorial Costs/Pickup Costs or Pay Backs	38
OPS Recycling programs	39
Basic Green Workplace program	39
Maintaining and improving existing recycling programs	39
Small Locations—Guidelines for Recycling	40
Remote Locations—Guidelines for Recycling	40
The Maximum Green program	41
The 3Rs – Construction and Demolition	42
The 3Rs – Hazardous Waste	42
Waste Audits	44
Reasons for/Types of Waste Audits	44
“Do it Yourself” Audit	44
Equipment	45
Procedure	46
Chart—Do it Yourself vs. Hiring A Consultant	48
Closing the Loop	49

Markets and end use of recycled products	50
Paper	50
Newsprint	50
Old Corrugated Cardboard/Boxboard	51
Cans/Glass Bottles/Food Waste	51
Plastics/Polystyrene/Office Materials/Packaging/Warehouse Materials	52
Contacts for Market Conditions	52
Places to visit to see the 3Rs in action	53
Reference information for greening information	54
Publications/Organizations	54
Appendix I: Some 3Rs programs available in the Regions	55
Northern Region	55
Eastern Region	56
South Western Region	57
Appendix II: "Solid Waste Management—A Glossary of Terms"	61
Appendix III: 3Rs Regulations	65

4 ENERGY

Background	68
Reducing Energy use in the OPS	68
Facility Management	68
Environmental Co-Ordinators	69
Energy-saving tips for the Home	69

5 WATER

Background	70
Existing Facilities	70
Ways for Facility Managers to reduce water consumption	70
Retrofit	70
Other Water Conservation Methods	71
Communications for water conservation	72
New Facilities	73
Reduce Water Consumption In and Around the Home	73
Appendix I: Contacts for Water Conservation Information	74
Appendix II: Excerpts from "The Quality of Drinking Water in Toronto" City of Toronto Department of Public Health	75
Summary and Conclusions	75

6 GREEN TRANSPORTATION

Background	76
Bicycling instead of using a car	77
Benefits of cycling	77
Starting a Bicycle Commuting Program	78
Starting out/Next Steps/Minimize Obstacles to Bicycle Commuting	78
Promoting a Bicycle Commuting Program	78
Facts about Bicycles	78
Public Transit	79

■ TABLE OF CONTENTS

Carpooling	79
Tips for Carpoolers	79
Sources of Information for Safety, Bike Courses, Alternative Transportation Options	80
7 ENVIRONMENTAL BUYING	
Background	81
Buying with the Environment in Mind—Ontario Government Policy	81
Environmental Clause	81
Consolidated Environmental Buying—Some Examples	81
Buy Green Checklist	82
Sources of Further Information on Environmental Purchasing	84
8 COMPOSTING	
Background	85
Green Workplace Demonstration Projects	86
Windrow (Leslie M. Frost Centre)	86
Windrow with Manure (Guelph Correctional Centre)	87
Aerated Static Pile (St. Thomas Psychiatric Hospital)	88
In-Vessel (Batch) (Aylmer Police College)	89
In-Vessel (Continuous Flow) (Ontario Science Centre)	90
Large Scale Vermiculture (Brockville Psychiatric Hospital)	91
Setting up on-site composting	92
Introduction	92
Why on-site composting	92
How composting works	92
Choosing the right composting method	93
Methods of composting to consider	93
The first steps	93
The next steps	93
Roles and Responsibilities	95
Housekeeping/Janitorial	95
Food Service	95
Groundskeeping/Landscaping/Contractor	95
Food Collection Containers	96
Collection Carts	96
Rubberized Plastic Collection Containers	96
Rubberized Plastic Containers for Draining	96
Appendix I: Organic Waste Audit	97
Appendix II: MOEE Guidelines for Midscale, On-site Composting Projects	99
Appendix III: 3Rs Guidelines for Food Services in Residential and Institutional Facilities	100
Appendix IV: Formula for payback	102
Appendix V: Negotiating with your Waste Hauler	103
Appendix VI: References—Materials, Reports and Contact Names	104



1 STRUCTURE FOR GREENING

A clear reporting relationship on greening, from senior management through to grassroots supporters or Green Teams ensures that staff at all levels are aware of the program.

The program structure sets out the various links to this reporting relationship. Ideally, the structure would mean Environmental Co-ordinators have leadership and moral support from senior manage-

ment, and assistance in completing green projects from staff. (See Appendix I for a sample of a ministry's greening structure).

The following structure suggests an 'ideal' situation that supports the efforts of an Environmental Co-ordinator and allows feedback both up and down the organization.



BACKGROUND

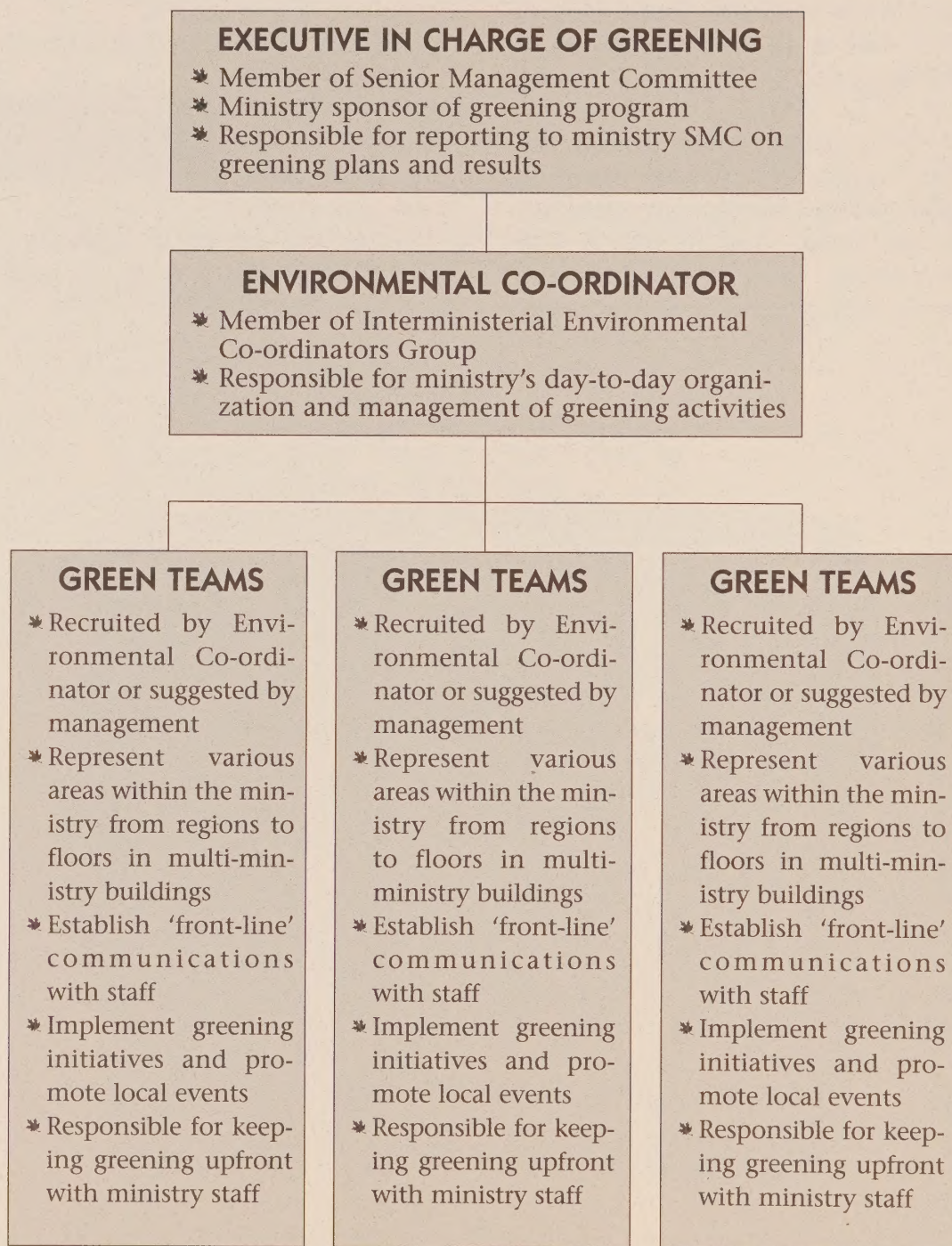
A structure for greening within ministries is an integral part of successfully implementing an environmental program.



■ STRUCTURE FOR GREENING

EFFECTIVE ORGANIZATION

The following organization has been found to be effective for establishing and maintaining an environmental program.



THE EXECUTIVE IN CHARGE OF GREENING

Each ministry has an Executive in Charge of Greening. The executive is considered the 'sponsor' of the ministry's greening activities and is responsible for reporting to Senior Management Committee on ministry greening targets, plans and results. The Environmental Co-ordinator reports to this executive on all matters pertaining to greening in the ministry.

THE ENVIRONMENTAL CO-ORDINATOR

The Environmental Co-ordinator has the pivotal role for organizing the environmental program within a ministry. The co-ordinator must support the overall corporate greening initiatives and organize environmental projects and initiatives in the ministry, including the regions. To tackle this wide-ranging role, the co-ordinator needs to have an understanding of the government-wide program and how it can be implemented in an individual ministry.

Here are some of the roles and responsibilities suggested for an Environmental Co-ordinator:

ORGANIZATION

- Set up a regular reporting relationship with Executive in Charge of Greening and through him or her to senior management
- Establish greening co-ordinators in the regions
- Set up Green Teams in head office and the regions
- Involve senior management when establishing Green Teams (if necessary)
- Lead the Green Teams

PLAN

- Work with Green Team leaders, and take the lead in preparing an annual plan for greening the ministry
- Hold regular meetings with your Green Teams to plan events and discuss greening

FUNDING

- Submit a budget for the greening plan

INFORM SENIOR MANAGEMENT

- Keep Executive in Charge of Greening up to date on greening progress, who will in turn report (or invite the Environmental Co-ordinator to report) to SMC

KNOW GOVERNMENT POLICY ON ENVIRONMENTAL ISSUES

- Be aware of government decisions that target environmental initiatives and get this information broadly disseminated in your ministry
- Educate staff about what these policies mean in practice and what behaviours need to change

MINISTRY POLICY (if appropriate)

- Draft a ministry policy statement on greening, as well as an Environmental Code of Practice (see Appendix III) for the ministry to be approved by senior management
- Use the policy to set out an overall plan for greening the ministry

COMMUNICATE

- In conjunction with Communications Branch and Green Teams, develop a communications plan to increase awareness of green issues

GREENING ROLES AND RESPONSIBILITIES

The Executive in Charge of Greening and the Environmental Co-ordinator are the 'windows' on greening activities in the ministry.

- This communications plan can:
 - ✓ highlight ministry's greening goals and targets
 - ✓ set out budget for communications tools
 - ✓ provide feedback/report card to staff on ministry greening
 - ✓ involve newsletter at special events, staff recognition, etc.
 - ✓ organize a network to distribute greening information
 - ✓ investigate possibility of setting up electronic bulletin boards to share greening information

BE SEEN TO BE GREEN

- promote yourself as a resource person for environmental concerns in general and your ministry's greening in particular
- establish a network of inter-ministerial greening contacts
- attend exhibits, trade shows on the environment
- join outside environmental committees
- participate in Interministerial Environmental Co-ordinators Group
- work proactively with purchasing officers
- promote greening to ministry's agencies
- promote greening image to all customers, clients
- where location dictates, work with municipalities, city co-ordinators, etc.

LIAISE WITH OTHER ENVIRONMENTAL CO-ORDINATORS

- develop joint projects in buildings with several ministries
- share information

- establish contacts with outside agencies

GREEN TEAMS

Green Teams make greening happen in the ministry. They are the front-line contacts for the rest of the staff. They can be ministry-wide, regional or local.

TEAM ROLES

Although roles and responsibilities for Green Teams will be developed to fit each situation, a Green Team can:

- set goals and targets for their section of the ministry or building
- promote local greening projects
- report progress on both local and corporate greening projects
- be a source of environmental facts and information
- liaise with other ministries' Green Teams

TEAM STRUCTURES

A ministry-wide team might include a representative from facility management, systems, communications, health and safety, recreation, food services and regional offices. If in a leased building, the landlord and janitorial service representatives might be on the Green Team. A regional team can include representatives from the various branches, and locally, the team can promote greening to just a branch or a floor.

In some areas, where there are multi-ministry buildings, a building Green Team can be made up of

representatives from the various ministries. The Green Team can elect a Building Co-ordinator who would work with facility management in implementing a greening action plan for the building.

REPORTING

All Green Teams can keep the ministry Environmental Co-ordinator up to date on their activities by sending along minutes of their meetings.

EFFECTIVE GREENING

A WORK PLAN

A work plan is an important way for the Environmental Co-ordinator to set out priorities for greening in the ministry for a specific year and keep the effort on track. (See Appendix II for an example of a ministry's Work Plan.)

The plan is also a useful tool to gain senior management attention for the environmental program. By presenting the plan to Senior Management Committee to obtain approval and hence commitment for the targets, an Environmental Co-ordinator can show staff that the executives support the program.

A ministry work plan could include:

- a ministry statement on its commitment to greening
- assessment of the current greening situation in the ministry workplace
- a proposal to conduct waste audits

- program targets and goals based on audit information
- development of methods to measure success
- special promotional events
- introducing Maximum Green

A COMMUNICATIONS PLAN

The work plan can be accompanied by a communications plan for the year. Using effective communications helps to ensure all staff are aware of greening activities and projects and know how to participate.

REPORTING PROGRESS

As part of the work plan, the Environmental Co-ordinator may set out regular times for reporting progress in greening to Senior Management Committee as well as to the Executive in Charge of Greening.

Once a structure and the various roles and responsibilities have been established, the new organization can begin the job of greening the ministry by using the following plans:

✻
WORK PLAN

✻
COMMUNICATIONS
PLAN

✻
REPORTING

■ STRUCTURE FOR GREENING

3Rs PROGRAM

This is an example of a full ministry greening program.

Environmental Co-ordinators may be in a position to introduce some or all of the initiatives.

Co-ordinators need to keep familiar with 'leading edge' 3Rs initiatives in order to keep their ministries proactive in greening.

REDUCE

- promote waste reduction in all

ministry workplaces across the province

- set up programs to encourage waste reduction

REUSE

- encourage reuse of products
- set up electronic 'swap shop' so ministry staff can promote reuse of materials, furniture, etc.
- where possible, encourage the use of reusable as opposed to disposable mugs, dishes, etc.

RECYCLE

- work with facility management/landlord to establish a basic recycling program in all ministry workplaces
- introduce the Maximum Green program to offices
- know where your ministry's offices, facilities, warehouses are situated and the recycling markets in these areas
- stay familiar with general waste issues
- know who to call about getting equipment for new programs, education, composting, communications tools, local recycling organizations, etc.

PURCHASING

- update purchasing officers about guidelines for the government's environmentally-friendly purchasing
- be familiar with EcoLogo products which are mandatory purchases for the government of Ontario

- encourage ministry staff to buy products with recycled content and reduced packaging

ENERGY AND WATER

- promote energy and water conserving habits in the ministry workplaces

COMPOSTING

- if considering composting, know which composting methods have been tested by other government facilities
- know facilities' hauling charges in order to assess the potential cost savings involved by introducing composting
- be aware of the various systems of waste management in facilities in order to decide economic viability of composting

GREEN TRANSPORTATION

- encourage staff to take public transport
- promote and encourage ministry staff to enroll in Share-A-Ride
- encourage staff to bicycle to work
- investigate installation of bicycle racks
- set up a BUG (Bicycle User Group) in each building
- be aware of green fleet management issues—which are corporate and which are a ministry's responsibility

BEPAC

- become familiar with BEPAC (Building Environmental Performance Assessment Criteria)

ENVIRONMENTAL COMMITTEE

Under direction from the Deputy, an Environmental Committee was set up that included representatives from each floor and from each division.

To recruit people, an e-mail message was sent out and all 20 people who volunteered joined the committee.

STEERING COMMITTEE

The large group proved cumbersome so a Steering Committee of eight members was formed with one representative from each division, someone from the deputy's office and the ministry co-ordinator.

(Each member of the Steering Committee mentors a group of Green Teams, ensuring information is passed in both directions—up to the Steering Committee and down to staff in all locations.)

GREEN TEAMS

The other members were restructured into Green Teams for each floor and location. More volunteers were added to form a total of 30 teams. Agencies, boards and commissions are linked into the ministry greening structure in this way.

Green Teams work independently in their area. They are responsible for ensuring people keep greening top of mind, and work with the Steering Committee on special events such as Waste Reduction Week.

SENIOR MANAGEMENT SUPPORT

The committee found that having a representative from the Deputy's office is important because it shows commitment from the top.

The Deputy's office showed support from the start and was prepared to lead by example. It made people available to green the ministry and practice the 3Rs in a visible way.

REPORTING

In addition, the committee enjoys Senior Management support. The co-ordinator does a quarterly report on greening to SMC and makes regular reports to Senior Executive Committee (Deputy and ADMs).

These reports are an opportunity to present the annual work plan and gain approval for it. The presentation also includes results of completed projects and recommendations for future greening efforts.

When started, the co-ordinator was in head office but has since moved into a district position.

The committee and co-ordinator use the ministry's e-mail system and bulletin boards to communicate with staff beyond the formal Green Team system that's been established.

APPENDIX I

Example of a Ministry's Greening Structure

MINISTRY OF LABOUR

When the environmental program was first started in the Ministry of Labour, an organization for greening was established in head office only.

GREENING ORGANIZATION



ENVIRONMENTAL COMMITTEE

STEERING COMMITTEE

GREEN TEAMS

APPENDIX II

FIRST QUARTER ACTIVITIES

The environmental committee was renamed and redefined its mandate to be:

An advisory body to senior management on how to make the Ministry of Labour a leader in establishing a green workplace.

The Environmental Steering Committee has members from the following areas:

- Policy Division
- Labour Management Services
- Corporate Services
- Deputy Minister's Office
- OPSEU representative from MERC
- Pay Equity Commission
- Liaison for ADM Corporate Services (Corporate Sponsor)
- Operations Division
- Communications and Marketing Branch
- Training Branch (Advisory Role)

The Steering Committee defined the Green Team mandate as follows:

To act as an information source to staff and to monitor the local environmental program. Through ongoing education, team members will promote staff awareness, assisting in the implementation of new initiatives and assisting in greening our workplace.

SECOND QUARTER ACTIVITIES

✳ Green Teams were established throughout the Ministry of Labour, including agencies, boards and commissions.

✳ Initial information packages were sent out to all teams.

✳ Waste Reduction Week (Sept 27–Oct 4) was used as a 'Kick Off' Green Team activity.

THIRD QUARTER ACTIVITIES

✳ Training sub-committee formulated an outline of a proposed education/information plan for the Green Teams.

✳ Feature on the video 'Fall Labour Agenda' outlined the goals of the Environmental Steering Committee and green workplace initiatives.

FOURTH QUARTER ACTIVITIES

✳ All Green Team co-ordinators and members were provided with an initial education/information session which re-enforced the Ministry of Labour's initiative for 1992-93.

✳ 'Green theme of the month' was introduced in the beginning of January 1993, and all Green Teams conducted staff awareness education/information sessions around these themes.

✳ A 'Greenbox' (a suggestion box) on the Vax system was implemented to encourage staff to submit ideas for the consideration of the Steering Committee to improve the ministry's greening initiatives. The account was set up under the control of the internal Communications Co-Ordinator, who is a member of the Steering Committee.

✳ Feature news articles were run in ministry newsletters to keep staff informed of Green Team activities. This served as a recognition for success stories and encourage more staff participation.

Example of a Ministry Greening Work Plan

MINISTRY OF LABOUR 1992-93 Fiscal Year Highlights



MANDATE OF THE ENVIRONMENTAL COMMITTEE

An advisory body to senior management on how to make the Ministry of Labour a leader in establishing a green workplace.



MANDATE OF THE GREEN TEAM

To act as an information source to staff and to monitor the local environmental program. Through ongoing education, team members will promote staff awareness, assisting in the implementation of new initiatives and assisting in greening our workplace.

PROPOSED INITIATIVES FOR 1993-94

✳ The adoption of an Environmental Protection Program Guideline and Procedure to be included in the Ministry of Labour's Corporate Policies Manual. This will ensure that all staff participate in environmentally sound practices when conducting the daily business of the ministry.

✳ Expand the existing Assets Loans and Transfer program to make it mandatory for employees to use the service prior to any computer equipment or furniture purchases.

✳ Continue the 'Theme of the month' program and have the Green Teams continue with education/information sessions around these themes.

✳ Initiate Maximum Green in Toronto offices at 400 University Avenue and at the Pay Equity Commission, 150 Eglinton Avenue.

The above initiatives will be taken to the various divisional committees for approval prior to their implementation.

APPENDIX II (continued)

*Example of a
Ministry Greening
Work Plan*

MINISTRY OF LABOUR

*1992-93 Fiscal
Year Highlights*

APPENDIX III

The Ministry of Health and all its employees, by adopting the following set of principles, will:

*Example of a
Ministry's
Environmental
Code of Practice*

MINISTRY OF HEALTH

*The Ministry of
Health embedded
its commitment to
the environment in
an Environmental
Code of Practice.*

✱ Demonstrate that the ministry and all its employees have a direct responsibility for the environment.

✱ Recognize that we are accountable for what we do, and will strive to use the resources of the ministry in a responsible manner.

✱ Conduct our business of providing quality operations in a manner to minimize the negative impact on the environment.

✱ Recognize and practise our responsibility to provide cost effective packaging systems for all purchased food, goods and equipment that maximizes product quality and safety and that simultaneously minimizes effects on the environment.

✱ Practice a policy which examines by survey and audit, all practices, products and equipment in all workplace areas including boardrooms, cafeterias, canteens and coffee rooms.

✱ Refine our practices, educate our employees, foster environmentally sound, ecologically positive decisions.

✱ Reduce waste and, wherever possible, reduce, reuse, recycle and recover materials and dispose of waste with responsible methods.

✱ Purchase products and services and proactively liaise with suppliers and manufacturers and fully evaluate and purchase products and/or services in a manner that minimizes adverse environmental impacts.

✱ Sustain the use and protection of natural resources, conserve non-renewable resources and eliminate the release of any pollutants that cause environmental damage through efficient use and careful planning.

✱ Practise risk reduction and disclosure; minimize the environmental health and safety risks to our employees and the community in which we operate.

✱ Communicate with and educate all employees; ensure employees are informed of the importance of their role with respect to environmental issues.

✱ Monitor and evaluate by audit and report results quarterly in compliance with this policy and Provincial and Federal Environmental Protection Acts and Regulations.

✱ Commit to consistent measurable progress in implementing this code of practice and apply it to every facet of the ministry.

Communications' is about empowering others with knowledge. The more staff know about greening the workplace, the better able they are to understand it, and the more likely they are to support it.

'Communications' helps to re-enforce current behaviour ("keep using your recycling bin") or to introduce brand-new behaviour ("read the 'How to' Max Green guide"). It can build on what is already working, or suggest ways to correct what isn't.

'Communications' can clarify problems and suggests solutions. It gives a vision of what can be accomplished—it offers goals and targets.

A COMMUNICATIONS PLAN

WHO PREPARES IT?

The Environmental Co-ordinator and the Green Team can work with their Communications Branch to write the communications plan.

WHAT ARE THE MAIN ELEMENTS?

A basic communications plan sets out the following:

- 1) Background information on greening
- 2) Objectives
- 3) Strategies
- 4) Audiences
- 5) Messages
- 6) Activities
- 7) Analysis

1) BACKGROUND INFORMATION

The 'Backgrounder' is an integral part of the plan. It briefly explains the program, highlights achievements and outlines the need for the communications plan. It's important to be aware of the big picture

within the ministry when preparing the backgrounder.

2) OBJECTIVES

Objectives—the end results—give direction to the communications plan. Consider how people will react to these end results. Be sure that the greening objectives support the ministry's business objectives.

3) STRATEGIES

Plan the most effective ways of getting the message out. Use ministry newsletters, work with Green Teams, piggy-back on existing events, arrange activities.

4) AUDIENCES

Identify audiences—management, staff, 'green' enthusiasts and not-so-green people. The audience sets the tone of the message.

5) MESSAGES

Messages may change from audience to audience. Recognize greening's supporters and detractors. Create messages that will appeal to the audience. Messages focus the attention of the audience on greening.

6) ACTIVITIES

Use activities to give profile to the communications plan. It's a good idea to consider what's happening at a corporate and local level when organizing events and activities.

7) ANALYSIS

Evaluate the effectiveness of the communications plan. Decide on who interprets the results (the Green Team, for example) and how to apply the results to the program.



BACKGROUND

Through communications, Environmental Co-ordinators can motivate staff to 'do the right thing' for the environment.

BUDGET

The Environmental Co-ordinator with a budget for greening is in a good position to produce communications tools to support a communications plan. These tools could include:

- Posters, flyers and other printed materials
- Prizes for special events
- Exhibits

However, for those co-ordinators without a greening budget, there are other ways to support the ministry's message and they don't cost a fortune either. Use any of the following:

- Green Workplace communications tools*
- Newsletter
- E-mail
- Electronic bulletin boards
- Earth Week/Day, Waste Reduction Week/Zero Garbage Day

- Special events like Maximum Green launch
- Ministry orientation program
- Green Team meetings
- Senior Management presentations
- Local branch meetings
- Annual Results Report on Greening

A greening budget may cover the following items:

- Staff time
- Communications supplies, like paper
- Services such as copying, faxing
- Communications tools such as certificates, posters
- Prizes for contests
- Arranging events—refreshments, photography
- Taking part in exhibitions and trade shows
- Seminars, courses

* Green Workplace communications materials include:

- Posters
- Brochures
- Fact Sheets
- Annual Results Report
- Exhibit

With the myriad of “high priority” matters a ministry’s senior managers have to address, it can be difficult to get workplace greening toward the top of the agenda. The key is to get a member of the senior management team named as leader of ministry greening.

In many ministries the CAOs have been named to this post since many of the staff who have to take a lead in greening activities (purchasing, accommodation) are within the responsibility of the CAO.

The Environmental Co-ordinator needs to provide this ministry greening leader with reports to bring to senior management.

The Deputy and ADMs should know what the staff are accomplishing. If results can be put in terms of dollars saved, they become immediately meaningful. Support for an annual plan of greening activities will get a big boost if it is approved at the senior management level.

In cases where a ministry has made a decision to have greening led by a person who is not on Senior Management Committee, it is still possible to send regular results reports to the members of SMC. Perhaps interest will be aroused and an invitation extended to make a report to the committee.

If awards and recognition events are used to mark greening achievements, inviting the deputy or an ADM to present the awards not only enhances the credibility of the recognition but at the same time brings greening accomplishments to the attention of the DM or ADM. Senior people in the ministry can be invited to kick off a new green initiative.

The support and encouragement of senior management is important—without it many initiatives may not be followed through. Therefore, it is essential to include a section in the communications plan which is geared specifically to senior management.

GETTING SENIOR MANAGEMENT ACTIVELY ON SIDE

EXAMPLE:

This senior executive communications plan comes from the Ministry of Labour

Communications to senior executive

- * Approach an Assistant Deputy Minister to become your sponsor.
- * Through this sponsor, present a greening status report to senior executive committee four times a year.
- * Use these occasions for candid discussion of issues and possible obstacles which may arise.
- * These quarterly status reports should be jointly prepared by the Environmental Co-ordinator and the main environmental steering committee or ministry green team.

Communications to division heads

- * Once sign off for proposals has been received from the senior executive, a presentation should be made to directors’ council (or any meeting of all ministry directors).
- * Again, this is an excellent opportunity to discuss greening plans for the upcoming fiscal year with directors and to get their buy in to the program’s initiatives.

GREEN EVENTS

In the 'green' world, there are at least two constant annual events — Earth Week and Waste Reduction Week. These events are great opportunities for the Environmental Co-ordinator and the Green Team to focus attention on greening in their ministry.

EARTH WEEK

Earth Week is the week surrounding Earth Day,

which always falls on April 22. Earth Day is traditionally the day when special environmental projects take place in the community, such as tree planting and river clean-ups. It is an especially good day to arrange special events for ministries in order to focus attention on greening. Everyone has heard of Earth Day and there is tremendous goodwill attached to its concept.

Earth Day Canada is a non-profit organization which offers posters and t-shirts for sale and expertise to encourage involvement in Earth Day. They also offer a Company Kit and a Fund Raiser Kit for sale.

Ideas to involve staff in Earth Day

- E-mail staff at the beginning of Earth Week.
- Run article in ministry newsletter.
- Use electronic bulletin board to distribute Earth Day messages.
- Wear green clothing or a green ribbon.
- Have a litterless lunch.
- Carpool, bike or take public transport to work.
- Set up an Earth Day display and information table.
- Run a competition for the best Earth Day poster drawn by ministry staff's children.
- Hold an environmental quiz or trivia show with Earth Day t-shirts, etc. as prizes.
- Have fun.

WASTE REDUCTION WEEK

Waste Reduction Week is organized by the Recycling Council of Ontario. It usually falls during the first or second week of October, with Zero Garbage Day falling on the Wednesday. This is another week that receives a lot of media attention as the RCO actively promotes it in communities and municipalities. The RCO holds a seminar in early fall to give ideas on what can be done for Waste Reduction Week.

Ways to involve staff in Waste Reduction Week

- Attend the RCO's half-day seminar on organizing WRW events.
- Organize a clothes drive either locally or across your ministry.
- Have competitions between branches or buildings to reduce waste.
- Promote a 'carless' day.
- Have lunchtime greening seminars with well-known speakers.
- Launch a Maximum Green program this week.
- Remind staff about the electronic communications, i.e. bulletin board, e-mail, etc., available for use in your ministry.
- Advertise ministries' successes in waste reduction (since the last WRW) in newsletters.
- Have fun.

SPECIAL EVENTS

Whenever possible, the Environmental Co-ordinator can organize a special event in the building or branch and give it a green focus. The event can be an opportunity to spread the word about the ministry's greening efforts and give them profile.

Organizing a ministry 'Greening Recognition Award' for staff, for example, offers the co-ordinator a chance to not only focus attention on greening but to also recognize staff who have especially supported the 3Rs program.

- Invite senior management to present the award.
- Arrange for the newsletter editor to attend.
- Contact other Environmental Co-ordinators for information on previous successful special events.
- Arrange draws, entertainment, etc. to generate interest and excitement for the event.
- Organize the special event in a public place, like a lobby. This gives more exposure to the event and generates interest.
- E-mail staff and invite them to the awards to show them that the ministry recognizes staff greening efforts.

MOTIVATION

ENVIRONMENTAL OUTREACH FOR ENVIRONMENTAL CO-ORDINATORS

A communications plan won't stand alone. Environmental Co-ordinators need to get out and sell the 3Rs programs. All initiatives need support—both from the top down and from the grassroots up—and many co-ordinators may have to work hard to get this support.

Here are some ways the co-ordinator can encourage the all-important support from senior management.

- Via the Executive in Charge of Greening, get on the agenda at a senior management meeting. Go over policies, targets and successes regarding greening the government.
- Use the Green Workplace Results Report to show that results are important, and published for everyone to see.

Once senior management is informed of the ministry's greening targets, the co-ordinator can motivate staff to support them in the following ways:

- Remind staff that most people are involved in some form of waste reduction at home, through the Blue Box program, backyard composting, etc., so the 3Rs are already known to them.
- Acknowledge that staff are being asked to make changes in their working habits—and that changes take time.

- Find out what triggers people to act and react.
- Give staff the facts about what's happening to the environment and where the OPS fits into the global picture.
- Identify leaders. Set up Green Teams.
- Make people feel good about 'doing the right thing'.
- Counter staff's feelings of "I can't make a difference", and "I can't change things" with information and facts about the environment to show them that the changes they make at work *do* make a difference.
- Use the ministry newsletter to inform staff about greening matters and to thank staff for practising 3Rs at work.
- Recognize green leaders and initiatives at the grassroots level.
- Get invited to branch meetings.
- Keep up to date on environmental activities in the ministry.
- Be seen to be a champion of greening.
- Be positive.

PITFALLS

Some pitfalls:

- Running a program and not telling people about it
- Neglecting a program through lack of communications
- Giving mixed messages about greening
- Setting objectives that are not considered attainable
- Taking staff's efforts for granted
- Giving up too easily

1) BACKGROUND

Although some government buildings in 1992 had already met the 1995 target of 50 per cent waste reduction, up to 40 per cent of recyclables were still ending up in the garbage. To capture these recyclables and further reduce waste, the Green Workplace introduced the Maximum Green program. The program challenged the OPS to reduce existing waste by a further 50 per cent in three months' time.

The Green Workplace first launched Max Green in three buildings willing to pilot the program in 1993. Given the totally different approach of this program—removing staff's personal garbage bins and replacing them with pint-sized desk top ones—a communications plan was especially tailored by the communications co-ordinator. This plan played a large part in the success of the program's pilots.

2) OBJECTIVES

To cut waste coming out of the government buildings taking part in the pilot by a further 50 per cent in three months. Based on the success of these pilots, the Max Green program will be rolled out to other government buildings.

3) STRATEGIES

- Get SMC support
- Encourage Floor Reps to volunteer for Max Green
- Floor Reps educate staff about Max Green

- Get support from janitorial companies and from recycler
- Promote Max Green to staff as something that can be done

4) AUDIENCES

SMC
Building staff
Property Management
Janitorial/Recycler personnel
Outside media
Internal media
Environmental Co-ordinators

5) MESSAGES

- There's something new coming called Maximum Green
- Maximum Green is different than what is now in place
- Maximum Green is an important program for the ministry
- You're being challenged to cut your waste by a further 50 per cent
- Help your building meet its target—support Max Green

6) ACTIVITIES

LETTER

- Deputy Minister e-mailed/wrote a letter encouraging staff to support Maximum Green.

MEDIA

- Articles for ministry newsletter were written.
- News releases were sent to local external media.

COMMUNICATIONS TOOLS

- Handouts were given to janitorial staff explaining changes in garbage removal.

EXAMPLES OF A COMMUNICATION PLAN

The Green Workplace's Communication Plan for the Maximum Green program, January 1993.

- Signage was displayed, identifying the buildings as “Maximum Green” buildings.
- A lobby display showed present garbage leaving building, along with the target for reduction.
- Maximum Green posters were hung on bulletin boards in work areas.
- A 3-D poster was developed showing each type of paper that could be recycled thanks to an expanded recycling list.
- Labels were placed on recycling bins to show what recyclables went into each bin.
- Flyers were put in elevators promoting support.
- Q & A sheets were also developed for the launch date.

FLOOR REPS’ MATERIALS

- An identifier was hung above the floor reps’ desks so staff would know where they sat.
- Floor reps wore a large green “Maximum Green. Ask me.” button.
- Floor reps sent out a notice to staff explaining Maximum Green.
- An information sheet was developed for the floor reps which explained their role and identified communications.
- A Q&A was developed for the floor reps in order to address staff’s concerns about the program.

THE LAUNCH

- The launch date was set and the attendance of the minister and deputy was arranged.
- Internal and external media were invited along with environmental agencies.
- Staff in the buildings were e-mailed, phoned to attend and

reminded about raffles, door prizes, etc.

- Floor reps were recognized by the minister for contribution to the program.
- A competition was arranged between the staff of the three buildings.
- There was a demonstration to explain new equipment and materials to be recycled.
- A prize was awarded to the staff member who came up with the best slogan about the Max Green program.

AFTER LAUNCH

- Staff were kept up to date on results by e-mail, etc.
- Display in lobby was changed weekly to reflect the decreasing number of garbage bags leaving the building.

7) ANALYSIS

RESULTS

- A waste audit completed three months after the launch date confirmed that the 50 per cent target had been surpassed in all three buildings.
- Feedback was welcomed from everyone involved in the launches in the three buildings in order to perfect future Max Green introductions.

RESULTS EVENT

- A special event was arranged, attended by the deputy minister to congratulate staff in the building.
- Staff were informed of the results by e-mail and phone, and encouraged to attend the event.
- The display in the lobbies showed the results of the audit.

- The Green Workplace recognized the efforts of the pilot buildings by returning to the deputy ministers their former garbage cans, now a planter bearing a plaque showing the percentage reduction of waste.
- Internal and external media were invited to the event.

After the three pilots were declared a success, a Maximum Green "How to" guide was written and made available to all ministries. Since the initial pilots, 11 other buildings have gone on the Max Green program. Eight other buildings plan to go Max Green by mid-1995.

MAXIMUM GREEN LAUNCH

The Environmental Co-ordinator chose the launch day for the program to coincide with the Federated Health Walkathon in order to maximize attendance at the launch. More than 500 people attended.

The Downsview location houses five buildings and a garage area. The number of employees totals over 2,500. The waste audit showed that 157 bags of garbage were being generated per day at the complex. The target for the program was to reduce the garbage to 78 bags a day.

MTO has a Green Routes Committee (Green Team) which was involved in planning the launch with the Environmental Co-ordinator from the beginning. What follows is the communications plan the co-ordinator followed to launch the Maximum Green program at Downsview.

HOW PEOPLE WERE INFORMED THE ENVIRONMENTAL CO-ORDINATOR:

Presented the Maximum Green program to ministry Green Team (Green Routes Committee) and invited MBS' Green Workplace staff along to update the team on how Max Green was working in other ministries.

Note: If the Facility Manager is not on the Green Team, make sure the manager is invited to the presentation as their support and involvement is crucial to the program.

Provided all team members with a green "Ask Me" identifier, a "Maximum Green Ask Me" button and a copy of the Maximum Green "How To" booklet in order to give them background on the program.

Made a presentation to Local Employee Relations Committee (LERC) monthly meeting. Requested the Union and Occupational Health & Safety representatives to provide names of people who might volunteer to become part of the Implementation Team.

MINISTRY OF TRANSPORTATION, DOWNSVIEW

*The Maximum
Green program was
launched
successfully by the
Ministry of
Transportation
(MTO) in
Downsview, on
May 14, 1994.*

Got on the agenda of the ministry's Senior Management staff meeting and presented the idea of starting the Maximum Green program.

- Requested ADM to send a memo to all other ADMs in the ministry requesting their co-operation in establishing a network of volunteers to perform the myriad of functions necessary for the success of the program.
- ADMs advised all Directors, Managers and Section Heads to offer full co-operation to either the Environmental Co-ordinator or one of the Max Green committee. Requested that a copy of the memos be sent to the Deputy.
- Established a launch date, invited the Deputy to make the launch speech.
- Provided the Deputy with background information and plans to be incorporated into the launch speech along with pertinent, measurable goals and facts on ministry's greening accomplishments to date.

MINISTRY GREEN TEAM (GREEN ROUTES COMMITTEE):

Outlined the Maximum Green program to staff and looked for volunteers to form the Implementation Team of Building Co-ordinators for the five buildings.

THE FACILITY MANAGER:

Conducted a waste audit which set the target reduction figure for Maximum Green. A three month 'After Max' audit was done to measure results and progress of the program.

IMPLEMENTATION TEAM OF BUILDING CO-ORDINATORS:

Advertised for Floor Representatives by posting flyers at elevators and on bulletin boards. Explained the program to managers in all five buildings and looked for volunteers to be Floor Representatives. Met with the volunteer Floor Representatives and used the Maximum Green "How to" Guide to outline their duties and responsibilities.

FLOOR REPRESENTATIVES:

- Identified themselves in their areas by hanging the "Ask me" identifier outside their offices.
- Wore their Max Green "Ask Me" button.
- Hung posters in prominent areas promoting the greening of the workplace.
- Arranged to be on the agenda at staff meetings; showed a video promoting the program; explained how the ministry is approaching the implementation.
- Distributed green information such as fact sheets, pamphlets, newsletters.

HOW ADVERTISING WAS ARRANGED

NEWSLETTERS, TOPICAL, MEDIA

Contacted the ministry's Communications Branch for help in promoting the launch. Examined possibility of advertising in government newsletters/papers; community newspapers; local radio stations (to announce launch celebration), as well as ministry newsletters. Promoted the fact that composting

and recycling helps the environment by reducing garbage sent to landfill sites. Took photographs for publication in Topical.

POSTERS

Requested posters from the Green Workplace to advertise the program.

- Mounted posters on foam core-board and displayed them in the Environmental Co-ordinator's/ Max Green Co-ordinator's office.
- Building Co-ordinators distributed them to the Floor Representatives for posting.
- Floor Reps displayed posters, in order to get maximum advertising of the greening program, over or near water fountains, outside or inside elevators, in coffee areas and at photocopiers.
- Designated areas as 'green advertising' spots and rotated green advertising amongst the designated areas to enforce all of the reduce, reuse, recycle policies.
- Displayed the "Have Tea In China" poster at all coffee stations and outside the cafeteria.

VIDEOS

A special video called "Save Some for me" was made to launch MTO's Maximum Green program and to reinforce existing greening programs. (Even if ministries don't produce a special video for their launch, there are many excellent videos available on helping the environment.) The video was used in the following ways to build awareness of the launch and program.

- Asked managers to show it at staff meetings
- Showed the video in the cafeteria
- Showed the video at main entrances
- Attended Health Fair and United Way special events and showed the video
- Showed video at union and other groups' meetings

PAMPHLETS

Installed a Green Workplace pamphlet holder in the hall outside the Environmental Co-ordinator's office. Ordered pamphlets (see Contacts List used by co-ordinator for printed material & videos section) and rotated displayed pamphlets to keep greening enthusiasts interested.

BULLETIN BOARDS

Installed bulletin boards in heavy traffic areas. Posted articles from government newsletters, memos, pollution probe news, Earth Day office memos, magazines, local papers etc. Updated the information in order to maintain interest.

E-MAIL

Used e-mail to promote the Maximum Green program and green ideas.

- Advertised launch date
- Sent an e-mail quiz, starting a month before launch date and sent one question a day, with the answer and a new question the next day
- Advertised events happening on launch date e.g. Goodwill clothing drive, product fair, video show

- Sent out instructions for recycling materials
- Listed contacts for green questions and concerns
- Introduced the Building Co-ordinators to all e-mail users
- Issued progress reports

PRINTED MATERIAL

Contacted the mail room to assist in distributing notice of events. Distributed notice to the secretaries of all ADMs, Directors and Managers. Marked the notice with a "please circulate to employees" on a circulation slip to hopefully eliminate some photocopying.

- Distributed other fact sheets, pamphlets etc. to the building co-ordinators, to pass on to the floor representatives for distribution to employees in their area. (Maintaining this network for distribution is very important for promotion and to obtain feedback on the program.)

ENVIRONMENTAL QUIZ

Distributed an environmental quiz. Awarded prizes (mugs, mounted posters, and other promotional material) to the first five people who answered the questions correctly. That encouraged people to participate and introduced the winners to the Environmental Co-ordinator.

MOBILE SIGNS

Rented a mobile sign and found it an invaluable tool to spread the word about Max Green to the five different buildings in Downsvue. (If it makes sense, rent a mobile sign to display upcoming Maximum

Green events.)

- Put the mobile sign in place for at least a month before, to advertise the launch date.
- Added a question from the environmental quiz, put a question up one day and the next day gave the answer plus another question.
- When other events were taking place in the ministry, we offered space on the mobile sign to the organizers. Advertised the launch date, e.g. Max Green Launch October 3, at top of mobile and put the other events below. This type of partnership helped to get other programs interested in the Green program and was a way of reducing costs for them, as well as reducing fuel to transport another mobile sign to and from the site.

PRODUCT FAIR

Organized a product fair to showcase products made from recycled materials to coincide with launch day. This proved to be very popular with people attending the launch and was a good drawing ticket to the launch. Manufacturers welcomed the chance to display their items produced from recycled materials and handed out samples or literature on their products. Set up a Green Workplace booth and distributed all the handouts obtained from contacts.

SUGGESTIONS FOR FUTURE MAXIMUM GREEN LAUNCHES

- To get ideas, talk to Environmental Co-ordinators who have already launched Maximum Green.

- Be creative, think of ways that will attract people to the launch and capitalize on existing events (like United Way or Federated Health activities) to communicate the Maximum Green message.
- Run a looped video in the lobby of the building showing the videos obtained from manufacturers.
- Set up a table for handouts.
- Have a draw for green coffee mugs, cloth lunch bags, tupperware sandwich holders, etc.
- Hold a Product Fair. For a list of manufacturers who would be interested in participating, contact other ministries that have had success in running a fair.
- Thank volunteers and have the launch presenter recognize their efforts.

CONTACTS USED FOR MTO'S MAXIMUM GREEN LAUNCH

PRINTED MATERIAL AND VIDEOS

Listed below are some of the contacts used by the Environmental Co-ordinator to obtain material for distribution at the Maximum Green launch. (Having a good selection of handouts, pamphlets, booklets, etc., assists in educating employees in the recycling process as well as providing material for your pamphlet holder.)

CONTACT	MATERIAL AVAILABLE
MBS The Green Workplace Program 416-327-3777	posters; good selection of fact sheets on greening practices and progress reports; videos
MOEE Call the Waste Reduction Office for a list of appropriate handouts 416-314-4639	brochures; booklets; newsletters; all good for handouts
Environment and Plastics Institute of Canada 416-449-3444	handout booklets; fact sheets on the myths and facts about plastics; newsletters
Local Public Works Dept., Toronto 416-392-4330	brochures and hand outs; example of hazardous waste; bookmarks listing locations of local transfer stations for toxic waste
Stelco Steel 905-548-4523	magnets; video; brochures
Consumers Glass 416-232-3603	video

GREEN PRODUCTION METHODS

Here is a green checklist for publications and communications tools.

The Green Workplace always makes an effort to use products with recycled content and environmentally-friendly inks. Environmental Co-ordinators can keep this in mind when deciding on what green communication tools to produce. Discuss needs and concerns with the ministry's Communications Branch. Producing popular tools guarantees their use which, in turn, promotes the program.

PLANNING AND DESIGN

- ☐ Decide whether production and distribution is going to be in an electronic format (i.e. diskette or via e-mail).
- ☐ If printed materials are necessary, use both sides of paper and use recycled paper.
- ☐ Use as light a weight of paper as practical.
- ☐ Use a standard paper size to avoid waste (on trimming) during printing.
- ☐ Limit the number of colours used. Each colour is added in a separate printing cycle, which uses more energy during production.
- ☐ Avoid dark blues, reds and purples because these inks are more difficult to remove during recycling.
- ☐ Large solid areas of ink take longer to remove during recycling. Consider using screen tones instead.
- ☐ Avoid bleeds (i.e. printing right to the edge of the page or beyond). Larger paper must be used for bleeds, and then trimmed, which wastes ink, paper and energy.

PRODUCTION

- ☐ Glosses, varnishes and coatings make documents difficult to recycle—avoid them.
- ☐ Make sure vegetable-based inks are used—they are easier to remove during recycling.
- ☐ Avoid laser printing because it burns ink onto the paper, making recycling more difficult.
- ☐ When binding is necessary, use only staples or wire spiral bindings as these can be easily removed in the recycling process. Or use plastic cerlox bindings and remove them before putting reports out for recycling. Your copy centre will accept them for reuse.

DISTRIBUTION AND PACKAGING

- ☐ Don't over-estimate quantities. Make additional copies on demand later.
- ☐ Make sure mailing lists are up to date.
- ☐ Recommend that publications/reports be shared rather than providing one copy per person in a branch, etc.
- ☐ Ensure that packing is environmentally-friendly. Use the minimum of packaging necessary and what is reusable and/or recycled and recyclable.

OTHER SOURCES OF INFORMATION INCLUDE:

INTERNAL:

The ministry's Communications Branch

MOEE (Public Information Centre for posters, etc.) (416) 323-4321

Trilcor (Ministry of Corrections/Solicitor General)
for buttons, etc. (705) 494-3357

EXTERNAL:

Earth Day Canada

Toronto Office (416) 599-1991

Metro Toronto Event HotLine..... (416) 744-5405

Recycling Council of Ontario (RCO)

(Waste Reduction Week, RCO Annual Conference)

Toronto Office (416) 960-1025

HotLine (416) 960-8804

Toll-free 1-800-263-2849

Ontario Waste Exchange (905) 822-4111,
ext. 656, 358 or 354.

Canadian Polystyrene Recycling Association (CPRA)..... (905) 612-8290

Ontario Round Table on Environment & Economy (416) 327-7028

Sierra Club (613) 960-9606

SOURCES OF INFORMATION FOR COMMUNICATIONS MATERIALS

When undertaking any type of communications planning or producing communications tools, Environmental Co-ordinators can speak to the staff in the ministry's Communications Branch. And don't forget to network with other Environmental Co-ordinators. There's no point in re-inventing the wheel. Tap into research already done and the expertise available.

APPENDIX I

ENVIRONMENTAL FACTS AT YOUR FINGERTIPS

From time to time, global environmental facts can be used as a basis for a speech or to motivate some greening action. Use these facts in communications pieces, as a slogan for an event, or just to focus attention on greening programs. And these facts show that we all have an impact on the environment whatever we do.

It sometimes helps to connect local workplace actions to the global environmental picture. The RCO's slogan, "Think globally. Act locally." says it all. The following environmental facts were collected by the Green Workplace from various sources during 1993 and 1994.

ALTHOUGH MANY ENVIRONMENTAL PROBLEMS ARE GLOBAL, THE CAUSES ARE LOCAL.

- ✱ If all the paper used in Canada each year was recycled, 80 million trees would be saved and about 35 per cent of our waste would be diverted from landfill.
- ✱ Worldwide, tropical forests are disappearing at the rate of 10 city blocks a minute.
- ✱ Each Canadian family produces one tonne of packaging waste per year.

IF WE CAN WASTE LESS AND RECYCLE MORE, IT WILL MAKE A WORLD OF DIFFERENCE.

- ✱ Phone books can be recycled into roofing tiles, textbook covers and insulation. This saves energy and use of virgin ingredients.
- ✱ Recycling a stack of newspapers only 4 feet high can save one tree.
- ✱ Making bottles from recycled glass saves an average of 30 per cent of the energy used to produce an equivalent amount of glass from virgin materials.
- ✱ Recycled plastic bottles come back as automobile bumpers, plastic lumber, fibrefill for quilts, etc.

- ✱ Glass bottles and jars can be reused in road construction.
- ✱ Using one recycled glass container in the making of a new one saves enough energy to keep a light burning for four hours.

ALL HUMAN ACTIVITY HAS AN ENVIRONMENTAL IMPACT.

- ✱ One drop of oil can render up to 25 litres of water unfit for drinking.
- ✱ In one year, the average Ontario family car can produce as much as five tonnes of carbon dioxide.
- ✱ Ontario produces enough garbage (10 million tonnes) annually, to cover the Skydome with a pile twice as high as the CN Tower.
- ✱ A tap leaking just one drop of water a second wastes 800 litres (eight bathtubs) of hot water per month.
- ✱ Containers and packaging by weight make up more than 30% of Ontario's municipal waste stream.
- ✱ Each person in Ontario produces an average of 6 bags (10 kgs each) of garbage every month.

Government workplaces include offices, hospitals, special education schools, correctional facilities, parks, workyards, wastewater and water treatment plants, laboratories and testing facilities, institutions for developmentally handicapped, warehouses, as well as other specialty facilities. The resulting waste is typical of residential, commercial, institutional and industrial sectors.

In this section we deal with solid non-hazardous waste, which is the principle kind of waste produced in the government. We also address some aspects of household-type hazardous and liquid wastes. The information is relevant for everyone

in a ministry involved in waste management: Environmental Coordinators, Facility Managers, Building Managers and staff.

Information on disposing liquid wastes (e.g. motor oil, paint), hazardous wastes (e.g. solvents, pesticides, hazardous lab samples) and biomedical wastes (animal wastes from vet labs, etc.) is available from ministries' Workplace Hazardous Materials Information System (WHMIS) coordinators. Contact a local MOEE office for copies of MOEE's specific disposal regulations for solid non-hazardous waste.



BACKGROUND

In August 1991, the Ontario government set a goal to divert waste from government workplaces going to landfill by 50 per cent by the year 1995.



THE 3Rs

REDUCE

AND

REUSE

The 3Rs—reduce, reuse and recycle—play an important part in reaching

the government's waste reduction target of 50 per cent by 1995. Reduction is the most important of the 3Rs. By reducing what is used, there is less left to reuse and recycle.

Reduction means doing things in a different way so that materials are used more efficiently and thereby reduce the waste produced. This requires looking at how things are done in a critical way. Reduction often affects the way people feel, which can lead to resistance to change. Reduction is the most radical of all the 3Rs. Sometimes, whole procedures undergo major change. No doubt, this is the most difficult "R" to implement—often it is intangible.

Reuse can be defined in two ways. One is to use materials over and over again in the way they were originally intended. Another is to use the materials in ways different to their original purpose.

PAPER

Since up to 80 per cent of office waste is paper, and many government workplaces are offices, it follows that, if office paper use is reduced, office waste will be reduced.

WAYS TO REDUCE OFFICE PAPER FOR EVERYONE

- 📄 Photocopy documents double-sided whenever possible.
- 📄 Use the photocopier's reduction feature to fit more on a page.

- 📄 Train staff to use equipment properly to reduce paper wastage.
- 📄 Use a fax stamp instead of a transmission cover sheet.
- 📄 Do as much editing as possible on the computer screen before printing.
- 📄 Use the print display option to check layout of correspondence before printing.
- 📄 Modify documents, by reducing margins, etc., and so use less paper.
- 📄 Use electronic mail, voice mail, and electronic fax, if available.
- 📄 Instead of copying all staff on correspondence, put one copy in circulation.
- 📄 Use draft pages in fax machine.
- 📄 Cut and bind pages and use for scrap notes.

ELECTRONIC COMMUNICATION

To investigate the many ways electronic communication can help a ministry save paper, the Environmental Co-ordinator can set up a Technology Team. This team can include 'techies' and 'greeners' and can look at the following areas with a view to examining what's possible in the ministry.

ELECTRONIC MAIL (E-MAIL)

Most government offices now have electronic mail, which connects employees within their ministry. E-mail provides electronic 'mail boxes' where messages along with files, letters and spreadsheets, are 'dropped' for specific people. It allows messages to be received and

responded to, all in a paperless manner. E-mail messages can be quickly indexed, stored, searched and retrieved.

ELECTRONIC POST OFFICE (EPO)

The EPO is a service offered by MBS Computer and Telecommunications Services (CTS). The EPO links various electronic mail systems throughout the Ontario government. It allows created e-mail messages in a ministry to be sent to any registered user in another participating ministry or agency. As of September 1994, some 27,600 OPS staff were registered users of EPO.

- Using electronic mail is an excellent way to save paper.
- Short messages can be communicated quickly and without any paper.
- Most electronic mail systems allow the set up of distribution lists, so by addressing a message to one list, it will reach many staff.
- Many electronic mail systems will allow recipients to take a document, add their comments and return it.

For information on your ministry's EPO support staff, please call the Customer Service and Support Branch of MBS' Computer and Telecommunication Services (CTS) at (416) 327-3206 to obtain a copy of their "Electronic Post Office Support Contact Listing".

BULLETIN BOARDS

Some—but not all—e-mail systems allow the creation of electron-

ic bulletin boards. They allow those connected by the system to share the same bulletins. Using bulletin boards is a very efficient, paperless way to reach many staff with any of the following:

- relocation news
- news releases
- notifying staff of retirements, special events, new appointments, etc.
- offering staff "tips" that they can incorporate into their daily work, such as greening tips
- newsletters
- suggestion box for greening ideas for the ministry/branch, etc.
- job postings

The team can check with the ministry's Information Technology Branch to see what type of bulletin boards exist, or can be set up, in your ministry.

LOCAL AREA NETWORKS (LAN)

An e-mail system allows sharing files of documents. Several electronic mail systems connect computers to a local area network (LAN). Files can be placed on the LAN, and everyone connected can have access to them. Policy manuals and databases can be shared in this manner.

The team can check with the ministry's Information Technology Branch to see if a system of LANs can be set up. If it's possible, make sure staff know the resources that will be saved, both in paper and cost savings.

EXAMPLE: Effective Use of a LAN in Greening

The Ministry of Education and Training produces their internal telephone directory almost without paper. A copy of a WordPerfect file of the telephone directory is placed on each LAN within the ministry; staff connected to the LANs can access the file and search for directory names. Paper copies are made available only to the staff that aren't connected to the LANs. The ministry estimates that it saves over \$2,000 and eight trees annually producing the telephone directory electronically.

SAVINGS

To calculate the cost and paper savings of distributing documents electronically rather than on paper, the team can consider the following:

COST SAVINGS

- 📖 the cost of the paper that would have been used had the document not been sent electronically (available from the standing agreement);
- 📖 the cost of photocopying the information within your ministry.

PAPER SAVINGS

1 tonne of paper saves 17 trees.
Therefore:

500 sheets (1 package) = 2.28 kg

(Based on the Infinity 100 paper supplied by the mandatory standing agreement)

If a project saved 50,000 sheets, then it would have saved:

$50,000/500 \times (2.28 \text{ kg}) = 228 \text{ kg}$

1000 kg = 1 tonne

228 kg = .228 tonne

1 tonne = 17 trees

$.228 \times (17 \text{ trees}) = 3.8 \text{ trees saved}$

Note: If the ministry is not connected to a LAN, documents can still be shared electronically. Telephone directories, policy manuals, etc., that staff refer to periodically for information can be placed on reused diskettes instead of creating paper copies.

MINIMIZING PAPER DISTRIBUTION

The team should promote the following habits so staff will use as little paper as possible, even when it is necessary to send paper copies.

- 📖 Although resource material, such as reports, may need to be made available to every staff member, each staff member may not need an individual copy.
- 📖 Use circulation lists for meeting minutes, magazines, newspapers and long documents that need to be shared.
- 📖 Set up a central library within each office for staff to share these documents.
- 📖 Use a laptop computer to take 'paperless' minutes.
- 📖 If possible, use the broadcast feature on a fax machine to send a paper copy of a document to a number of staff.
- 📖 If copies of documents that aren't necessary are received in the office, the sender can be asked to update the distribution list for the future.

PAPER REDUCTION TECHNOLOGY

PHOTOCOPIERS

Most ministries have some photocopiers that have double-sided capabilities. (Some photocopiers coming on line may be fitted with meters to measure the number of double-sided copies made.) These can save a tremendous amount of paper and money. The Technology Team can:

- 📖 Ask the copy centre to implement a policy of double-sided copying. This means clients get double-sided copies unless they specifically request single-sided copying. This cuts paper consumption almost in half, which

saves a lot of money if the centre produces thousands of pages.

- 📖 Encourage staff to call a sender of single-sided documents and request that next time it please be sent double-sided.
- 📖 Offer training to staff who aren't sure how to copy double-sided, and place posters and reminders by photocopy machines to copy double-sided.
- 📖 Encourage staff to make only the number of photocopies they need.

If the team can track the copies each branch/unit creates, it could establish a contest to see which team could most reduce its consumption of paper. If it isn't able to track by branch/unit use, the team may wish instead to track the paper used by the entire ministry within a year. (This is also useful information for the measurements needed for the ministry's annual greening report.)

To determine how much paper is used by the ministry, the team can track the following:

- all paper used by the photocopiers within the ministry;
- all paper used by branches/units throughout the ministry (this could include letterhead, paper for computer printers, scratch pads, etc.)

PRINTERS/FAX MACHINES

Many printers within the OPS produce single-sided documents. The Technology Team can ask your purchasing officer about the cost difference between purchasing a printer with double-sided capability and a printer with one-sided capability.

Even if a printer produces single-sided copies it's possible for staff to save paper and other valuable resources if they:

- 📖 Use the Print View and Spell Check features within word processing packages to catch errors before printing.
- 📖 Only print changed pages after making revisions to a document.
- 📖 Print drafts of documents with less toner; this will conserve this resource particularly if it's an inkjet printer or if a graphic package is being used.
- 📖 Make cover sheets simple. This conserves toner and speeds the time of transmission.

PRESENTATIONS

Presentations can be made without using paper for overhead slides. Many ministries have at least one Liquid Crystal Display (LCD) projection panel. This allows the projection of graphics from a computer onto an overhead screen. The LCD panels attach to an overhead projector, and are usually available from the ministry's information technology area.

WAYS EVERYONE CAN REUSE PAPER

- Use the back side of used pages for notepads, telephone message pads and in fax machines.
- Share newspapers and telephone books with co-workers.
- Reuse cardboard boxes, envelopes and folders.
- Set up a 'swap shop' for paperbacks, magazines, etc. in the office.
- Offer outdated stationery, etc. for reuse to local day care centres for crafts.

CARDBOARD

Corrugated cardboard is used extensively in the packaging of furniture, equipment, office supplies and paper. Some warehouses, stockrooms, receiving docks and kitchens accumulate significant quantities of old corrugated cardboard (OCC).

Ironically thousands of tonnes of old cardboard go to landfill sites every year while large quantities of the same material are currently imported to meet the requirements of the local cardboard industry.

REDUCE

Since cardboard is a prime packaging component, the most effective way for a ministry to limit its use is to make firm agreements regarding packaging and delivery in purchasing contracts. Anyone involved in purchasing can follow these tips to reduce cardboard.

- Require suppliers to use reusable/recyclable packaging wherever possible.
- Request that suppliers use fabric bags/'throw-overs' for furniture and equipment.
- Remove OCC from premises for recycling after delivery.

REUSE

Cardboard cartons are ideal for document storage, can be re-labelled and used indefinitely.

NEWSPRINT

About 10 per cent of waste from a typical government office is newsprint.

REDUCE/REUSE

The simplest strategy to reduce the volume of newsprint in the workplace is to reduce the number of newspapers and magazines. Staff should be encouraged to share them, and give them away after circulation.

Distribution of government publications like 'Topical' and other newsletters should be proportionate to the number of staff. If an office receives more than needed, let the Communications Branch know immediately.

If suppliers use newsprint for packaging, they should be encouraged to use old newsprint rather than new paper and then, at the receiver end, the newsprint should be recycled or returned for reuse.

Newsprint flipcharts for presentations should be replaced by reusable white sheets similar to "white boards". (Electronic white boards can make a copy on paper of what's written on a scrolling white board.)

When sending out information materials, especially to the public, consider using newsprint instead of fine paper. More people have access to newsprint recycling than to fine paper recycling.

BOXBOARD

Boxboard is used primarily in the prepackaged and take-out food industry. It is also used in the manufacture of cereal boxes, diskette containers, shoe boxes, book covers and backing for writing pads. It is manufactured from low grade newsprint and old cardboard, and is sometimes wax coated.

REDUCE

Food Service Managers at Institutions which use large quantities of prepackaged food (cereal, frozen food, etc.) should arrange bulk packaging with suppliers.

Purchasers of large quantities of diskettes should use products available in reusable plastic boxes rather than ordering diskettes in boxboard boxes.

REUSE

Some schools and institutions use boxboard in their crafts departments. It might be possible to divert boxboard to them.

PLASTICS

In a typical government office, most of the plastic waste is food packaging and office equipment made of plastic and other materials.

REDUCE

Despite the advent of degradable plastics, recycling is still the preferred method to reduce the volume of waste plastic. Degradable plastics do not reduce the overall volume of

plastic waste nor do they break down completely in landfill sites.

Staff can consider using items containing alternate materials for packaging or office supplies, e.g. writing pens from OPC that have pen barrels made from 98 per cent recycled post-consumer paper waste. Throw-away pens can be replaced by fountain pens or pens that use refills.

REUSE

Reusing plastic items can assist in minimizing waste going to landfill sites.

REMANUFACTURED TONER CARTRIDGES

Staff can ask to use remanufactured toner cartridges instead of new ones. These cartridges can be bought from the Office Product Centre (OPC) and elsewhere. Some photocopier vendors sell cartridges than can be reused.

The use of remanufactured toner cartridges is covered under tough federal government quality standards (refer to CGSB-53.14 8-M90 for the specification requirements when seeking a supply source).

Remanufactured cartridges as opposed to refilled cartridges offer optimum standards and are usually guaranteed to meet or exceed original manufacturers' specifications with respect to quality, yield and performance.

EXAMPLES: Reuse of Containers/ Pallets

1) The Ministry of Natural Resources is using plastic shipping containers for distributing fire fighting equipment and chain-saw kits. They are also testing the use of plastic pallets in place of wooden pallets for the transportation of materials.

2) The Ministry of Environment and Energy laboratories uses reusable sample boxes made out of recycled plastic.

The cost of a remanufactured cartridge is approximately 50 per cent of the cost of a new cartridge. With the right grade of toner and superior replacement of components, remanufactured cartridges can produce 35 per cent more high quality prints. Up to 90 per cent of the original cartridge can be reused.

In Canada alone an estimated 2,700 tonnes of non-biodegradable toner cartridges could be headed for landfill sites this year.

CONTAINERS/PALLETS

Plastic containers can be re-used for many purposes such as storage of materials or liquids. Plastic pallets are more expensive than wooden pallets, but they have a longer life span. The slippery surface of plastic pallets can cause safety problems depending on the type of goods or packaging material used.

It is also possible to rent pallets. Whether using ministry-owned or returnable pallets, ensure that customers hang on to them and that arrangements are made for returns.

BAGS

Reusable plastic utility bags can be used for operations that distribute publications or other items to the public.

By reducing the number of plastic bags used and by reusing them, the amount of petroleum and forest resources needed to make these bags is reduced. In addition, less plastic will end up in landfill sites and haz-

ards for wildlife on land and in water will be reduced.

WAREHOUSE MATERIALS

Warehouse operations usually involve handling activities such as packaging, receiving, storage and transportation of goods. Consideration should be given to 3Rs' opportunities from both the receiving and shipping aspects of the operation.

Alternative environmentally sensitive packaging or storage methods should be chosen without compromising the integrity of the products. The safety impacts for staff involved in the materials handling process must be taken into consideration, too.

REDUCE

The focus for reduction should first be on goods and materials that are shipped into a ministry's warehouses, and/or stockroom operations.

- A ministry's purchasing department can request suppliers to minimize or eliminate packaging, e.g. bulk packaging a total order of pens instead of individually packaging each boxed pen.
- Processing larger orders in place of multiple smaller orders reduces packaging waste and may have cost benefits.
- Ministry vehicles or external couriers can be effectively used to conserve fuel costs.

REUSE

Wooden pallets or skids can be reused in warehouse operations. Pallets or skids received with incoming shipments can be reused to ship

goods out of the warehouse. If there is no further use for them, they should be returned to suppliers for re-use. Pallets that have broken slats are often more economical to repair than to transport to landfill.

Glass, metal and plastic containers and packages can be reused, e.g. as storage containers for supplies. Larger containers can be reused to store recyclables or even to ship outgoing materials. Care should be taken not to re-use any container whose label suggests that it has contained chemicals or other hazardous materials.

PACKAGING

Packaging materials are estimated to constitute 50 per cent by volume of municipal waste. To address this problem, a Canadian Code of Preferred Packaging Practices has been developed. These practices address the following issues:

- toxic packaging
- packaging elimination, reduction and reuse
- packaging recyclability
- recycled content of packaging.

REDUCE

Reduced packaging means a major reduction in the volume of solid waste in municipal landfills. Reduced packaging on goods may also reduce overall costs of materials.

Ministry staff in purchasing and stores areas can implement tendering practices to eliminate or minimize packaging by:

- purchasing materials in bulk to cut down on packaging
- requesting suppliers to ship products with minimal and recyclable packaging
- requesting suppliers to remove packaging from premises where appropriate
- using material such as shrink wrap to replace cartons for shipping purposes.

REUSE

Where stores, distribution or shipping and receiving activities exist, opportunities exist for staff there to investigate ways to reuse packaging.

- Collection facilities and markets may exist for packaging materials such as expanded polystyrene foam "peanuts", newspapers or shredded office paper.
- Suppliers can be encouraged to design packaging for its re-use by the customer, e.g. shipping crates, containers, etc.
- Old shipping containers can be repaired and reused.

In selecting packaging materials for your organization, investigate the presence of any toxic materials or agents and minimize or eliminate them.

Preferred packaging practices can be implemented, provided they do not compromise health, safety or product integrity standards or violate regulatory requirements.

EXAMPLES: Green Practices in Packaging

Management Board Secretariat (MBS) had a contract for chairs which requested delivery in blankets, not cardboard boxes. It also required the removal of the shipping blankets by the vendor for reuse.

The Green Workplace ships floor recycling bins in burlap bags. After delivery, these bags are used inside the bins for collecting recyclables.

EXAMPLE: Reuse of Packaging

MBS' Office Products Centre encourages its suppliers to use shrinkwrap instead of other packaging. The OPC reuses the shrinkwrap for shipping supplies internally to OPS customers.

EXAMPLE: Other Green Practices

The Ontario Waste

Exchange was recently seeking sources of lint for casket manufacturers who need lining materials for caskets. The central laundry at Maplehurst Correctional Centre was contacted and is now considering using this method to divert their lint from landfill.

OTHER ITEMS

Old furniture, office equipment and supplies, mattresses, etc. can be reused through the government Surplus Assets Management program, headed by Management Board Secretariat and co-ordinated in each ministry by a surplus assets officer. If items are not in good condition, they can be marketed to organizations such as Trilcor (Ministry of Solicitor General and Corrections) or the Ontario Waste Exchange, a non-profit agency, or through recyclers.

RECYCLING

Recycling was introduced to the OPS approximately 14 years ago by the former Ministry of the Environment which distributed bins for the collection of fine paper, mostly in the Toronto area.

A program for recycling cans, bottles, newspapers and fine paper and, in some cases, corrugated cardboard was implemented across the province by the Green Workplace Program (GWP) between 1990 and 1993. By 1994, more than 80,000 employees had access to a basic recycling program.

Recycling is the easiest way for staff to divert waste from disposal. It should, however, be considered only after efforts to reduce and reuse materials have been tried.

- Recycling reduces the consumption of both renewable and non-renewable resources.
- Recycling reduces the volume of hazardous chemical waste created when virgin products are manufactured.
- Less energy is used to make a product with recycled material than with virgin material.
- Recycling extends the life of landfills since less space is needed to dispose of waste in the ground.
- Need for less space lowers the cost of handling waste since construction of new landfills is delayed until absolutely necessary.
- An associated environmental benefit is minimizing the use of land for landfill.
- Less leachate has to be managed. (Leachate is the liquid generated from landfills when rainfall or other water sources come into contact with the garbage).
- Landfill gases are reduced.

Although it is the easiest 'R' to implement, recycling means a change in behaviour and attitude and in the way things are done in the workplace.

- There are more bins in the workplace than before.
- Each person now has to take the responsibility for their own waste.
- Property managers must co-ordinate one or two more contractors coming to their buildings.

- Recycling means that materials may have to be transported longer distances than regular waste, which consumes more energy.
- Markets for recycled materials are still developing and can be unstable, which is a source of concern for the recycler who is trying to get a good price for the materials.

RECYCLABLE OR NON-RECYCLABLE

Here are some guidelines to explain why something is considered recyclable or not.

TECHNOLOGY

If the technology doesn't exist to process a material into something new, it's not recyclable. However, just because the technology is there does not mean it's economically feasible to recycle—other factors play a big role.

MARKET

Even though markets or end users may not exist at the present, it does not mean that markets won't be developed in the future. That's why some things that weren't recyclable two years ago are now recyclable.

LOCATION

If the manufacturing plant and the recycling centres are long distances away, the item may be technically recyclable but collecting it for recycling at that location may not be cost effective or environmentally sound.

QUANTITY

Sufficient quantities (and storage areas) are necessary to make collection and transportation of the materials viable. It is cheaper to transport larger quantities on a less frequent basis. For example, plants can recycle boxboard but large quantities are needed to make it worthwhile.

QUALITY

The better the quality of the recyclables, the more money recyclers get for it. This adds more incentive to gather materials for recycling, possibly from longer distances. Materials must be clean and separated from undesirable items.

All of the above considerations were taken into account when materials were chosen to be part of the Green Workplace recycling program.

HOW TO SET UP A RECYCLING PROGRAM

Although most buildings used by the OPS have a current recycling program, things may change—staff move from buildings, etc.—and the Environmental Co-ordinator may have to work with the Facility Manager or Landlord to set up a recycling program from scratch. The following information will help to set up a program.

RESEARCH THE RECYCLING MARKET

- Recycling markets vary from area to area. This depends on how many recyclers there are in the

area (the more recyclers, the better the deal available), how much they sort, clean and process the materials and what end markets they have.

- Information on recycling can be found by contacting:
 - the municipality's Waste Coordinator
 - AMRC (Association of Municipal Recycling Coordinators) in Guelph
 - recyclers with ads in the newspaper or phone book
 - school boards, environmental associations or large businesses which may also be recycling.

DECIDE HOW TO GET THE MATERIAL TO THE RECYCLER

- A hauler can be hired to take materials to the recycler.
- Ministries, especially in institutions, may transport their own materials to the recycler.

EXAMINE EQUIPMENT ISSUES

- Container size—depends on the material shape, weight, frequency of collection, expected quantity being generated and what space is available in the work area.
- Colour—ensure colours are consistent for each type of material so there is no confusion. For example, the Green Workplace program used green bins for fine paper, white bins for newspaper, beige bins for polystyrene, blue boxes for cans and bottles.
- Safety issues have to be considered—what works best for a particular need, what changes may have to be made to existing equipment, etc.

- Labelling should give clear information about what goes in each container.

- Storage choices can be made based on the type of material being collected and how long it will be stored.
- Aesthetics should be considered, based on where the equipment is, and how easy or difficult it is to retrieve the material inside.

DECIDE ON HOW RECYCLABLES WILL BE REMOVED

- Designate responsibility for removal of recyclables. This can be done by staff, janitor, clients, or other designated persons. Typically, in office locations, the janitor removes the recyclables.
- Decide upon method (dollies, bags, larger rolling bins) and frequency (daily, weekly, as required when full) of collections.
- Examine available storage space for holding the materials by looking at internal space, outdoor space, protection from the elements, ease of collection and transportation of materials onto vehicle. Storing the material should not create a health and safety or fire hazard.

BE AWARE OF ALL COSTS

Equipment: Either the Landlord or the ministry pays for the recycling equipment for staff use or it can be supplied by the recycler. In the past, the Green Workplace supplied recycling equipment free of charge. Now property management of Ontario Realty Corporation will have to buy any central collection bins and asso-

ciated bag liners. Ministries will pay for individual bins like the desktop papersavers or mini-garbage bins. Recycling equipment for government offices can be bought through the Office Products Centre of MBS.

Storage and Janitorial Costs: The Landlord, or Facility Manager, namely those normally responsible for waste pickup, looks after these costs.

Pickup Costs or Paybacks: Sometimes there is a cost for collecting recyclables and this depends on the markets, material quantities and quality and location. The Landlord, Facility Manager or whomever is normally responsible for waste disposal may handle this.

■ Typically, recycling is cheaper than landfill disposal simply because recyclers can sell the processed material and can recover most of their processing and transportation costs.

■ In some situations, the quality and quantity of material may be so good that recyclers will pay for it.

Traditionally, Management Board Secretariat (MBS) had the responsibility for dealing with, and paying for, all charges regarding recycling and waste disposal at government-owned buildings. As the Ontario Realty Corporation (ORC) takes over these duties, ministries should check with their Facility Managers to update themselves on the ORC.

OPS RECYCLING PROGRAMS

THE BASIC GREEN WORKPLACE PROGRAM

The basic Green Workplace program involves collection of fine paper, newspaper, cans, bottles and cardboard in the following manner.

- Each person has a green desktop container for fine paper which they empty into a large, centralized, green floor bin with a burlap bag liner.
- White floor bins with burlap liners are available for newspaper and blue bins with or without plastic liners for collecting cans and bottles.
- Cardboard is flattened and collected in storage rooms or placed near floor bins.
- There is usually one floor bin per 10 staff in open office areas or one bin per separate group.
- Green paper bins are placed in high generation areas such as photocopy rooms and print shops.
- Blue bins and newspaper bins are placed in easily accessible locations near exits and lunch rooms.
- In Metro Toronto, polystyrene beige floor bins with clear plastic liners are placed in lunchrooms or central locations.
- Collected materials are stored either in a storage room or outdoor storage bins until picked up.

MAINTAINING AND IMPROVING EXISTING RECYCLING PROGRAMS

Environmental co-ordinators can do several things to maintain and improve recycling programs.

EXAMPLE: Recycling in Remote Areas

In the Cochrane, Kapuskasing area, a collection route was set up by MTO with MNR and other ministries. An MTO truck collects from several offices along Hwy. 11 every few months and takes materials to ARC Industries (a non-profit organization for developmentally challenged who have set up a sorting program). There are storage and scheduling difficulties. The truck is only available when it is not needed for its regular duties and the collection is limited to fine paper only, since cans and bottles cannot be stored for a long time (residue attracts pests). But recyclables are moving.

- Compile a ministry list of all offices showing on-site contacts, the recycling equipment in use and the recycler/garbage hauler.
- Establish contact with the property manager, landlord and recycler.
- Watch where areas of expansion may arise.
- Keep in regular contact with the buildings to ensure the program is continuing.
- Deal with problems as they arise.
- Provide information regarding new markets or changes in existing markets.
- Arrange through your ministry's accommodations services to be informed when offices are relocating.

Although the aim of the Green Workplace 3Rs program is to make recycling available to everyone in the OPS, arrangements may be difficult in small offices and remote locations.

SMALL LOCATIONS

Definition: Multi-ministry or single office location, isolated from other government offices, with 10 full-time employees or less.

Recycling may not be available at small locations due to low volumes of recyclables and it may not be economical to service that specific location. Small locations are not required to be considered for recycling programs unless specifically requested by staff at that location. They may have to establish their own way of servicing their program. For example, it may be necessary to bring materials to a serviced loca-

tion or take materials to municipal depot, etc.

Here are some guidelines for Environmental Co-ordinators and/or Facility Managers to deal with requests for recycling from small locations.

- Explain to staff why recycling may not be readily available at small locations.
- Investigate transporting recyclables to a serviced location nearby.
- Investigate use of the municipal Blue Box pickup or depot for cans, bottles and newspapers, either at work or at home.
- Establish a storage area which could hold sufficient quantities that would make collection economical.
- Provide list of reduction and reuse ideas.
- Discuss recycling ideas with the Facility Manager.
- Suggest staff take food waste home to their own composters.

REMOTE LOCATIONS

Definition: Remote locations are those in areas where access to a recycling market is not economically feasible.

Remote locations are designated based on the fact that there are no current markets for their recyclables. The status of remote locations should be reviewed upon receipt of new market information, or every six months, to study the potential for markets or alternatives.

Here are some guidelines for Environmental Co-ordinators and/or Facility Managers to deal with requests from staff for recycling from remote locations.

- Explain why recycling is not readily available in remote locations.
- Provide reduction and reuse ideas.
- Suggest staff transport items to a regional office or head office that has a recycling program.
- Review economic feasibility to recycle every six months.
- In the case of 10 small buildings in the same town, a Facility Manager may be able to set up a storage area so each building can drop off their recyclables. This may be more economical than having a truck go to each building to pick up materials.

THE MAXIMUM GREEN PROGRAM

The Maximum Green program was introduced by the Green Workplace in 1993. Waste audits in several government workplaces had shown that a significant portion of garbage consisted of materials that should have been recycled. With the goal of capturing these recyclables, Max Green was born.

Three ministries offered to pilot the program in Toronto buildings —

MOEE, 135 St. Clair Ave. West; MBS, Ferguson Block, Queen's Park; and ATG, 720 Bay St. The goal was to reduce the garbage coming out of each building by 50 per cent in three months. All three buildings reduced their waste by more than 50 per cent. Based on the success of the pilots, a total of 16 buildings are now following the Max Green program.

The basic elements of Max Green include:

- Deskside garbage pails are replaced by mini-garbage bins which staff empty into central garbage bins.
- Food waste is collected in small bins which hang off garbage or polystyrene bins. Food waste is emptied daily by janitorial staff and is composted.
- Paper recyclable list is expanded to include glossy magazines, window envelopes, post-it notes, colored paper, manila envelopes, etc.
- Heart of a successful program is intensive re-education of staff.
- Maximum Green is recommended for single-ministry buildings with an expanded recycling market and a way of diverting food waste (vermi-composting bins for each office or on-site or off-site composting or digesting systems).

THE 3Rs - CONSTRUCTION AND DEMOLITION

Reduction, reuse and recycling of wastes from construction and demolition activities in the government are promoted and outlined in Section 1100 — Environmental Pro-

tection Requirements of Division 1 — General Requirements of Master Specifications on Construction and Demolition, published by Research, Codes and Specifications Section of Design Services Branch, Management Board Secretariat.

THE 3Rs - HAZARDOUS WASTE

Anyone handling hazardous materials in the workplace should be aware of The Workplace Hazardous Materials Information System (WHMIS) which outlines how materials must be stored and safety precautions to be taken in handling those materials.

Hazardous and liquid waste disposal is regulated by MOEE through Regulation 347 and the Environmental Protection Act, Part V. MOEE has defined the responsibilities for waste generators, carriers, receivers and final disposal sites.

Asbestos, PCBs and CFCs are specifically regulated by MOEE. See Regulation 347 for asbestos, 352 and 362 for PCBs and 356 with amendments 471-91, 498-92, and 851-93 for CFCs.

Having said that, here are some ways to reduce, reuse and recycle the following hazardous wastes.

HOUSEHOLD TYPE BATTERIES

REDUCE AND REUSE

- Buy appliances that use both batteries and AC adaptors and plug them in to save the batteries when possible.
- Buy rechargeable batteries instead of disposable.
- Try recharging systems for alkaline batteries.
- When batteries get too low for high voltage/critical use appliances, like emergency radios, pagers, etc., use them in secondary, low voltage items like clocks, tape recorders, etc. until they totally run out. A battery meter is useful for this.

RECYCLING

- There are markets available in the U.S. and Ontario to recycle almost every kind of battery. The cost to collect and deliver batteries to these markets may be prohibitive.

ORGANIC SOLVENTS

e.g. FROM LABS

Recycling companies will pickup materials from labs. Each company has different requirements for collection, e.g. minimum quantities, costs, contamination, etc. Another option might be to mechanically and chemically restore used solvents on site. Contact local environmental labs, (listed in the Yellow Pages) or hazardous waste management companies to see if they have this technology.

MOTOR OIL

It is government policy that re-refined oil should be used wherever possible. All government garages currently have their own local arrangements for re-refining oil.

OIL FILTERS

Oil filters can be recycled. The filters are crushed, the metal sent for recycling and the oil sent for re-refining. A contracted company will place an on-site recycling bin for the pickup of used oil filters and ensure that they are recycled.

LEAD ACID BATTERIES

Reduce the use of these by using

rechargeable batteries for such things as forklifts. All lead acid batteries should be recycled. Government garages currently have their own local arrangement for recycling with licensed companies.

PAINT

Estimate proper amount of paint needed for any job. Purchase paint that meets EcoLogo standards. Mix excess paints and use in small isolated rooms, e.g. maintenance closets, furnace rooms, garden sheds, etc. There are paint recyclers now available in Ontario.

PROPANE CYLINDERS

Purchase refillable containers where possible. Old containers can be refurbished or the gas can be purged and the container recycled.

CLEANING PRODUCTS

Buy environmentally friendly products with low phosphates. These are widely available in Ontario. Use all of the product so there is no residue to dispose of. If this is not possible, contact the manufacturer and inquire about a return policy.

WASTE AUDITS

Waste audits measure what is going to landfill as well as what is currently being recycled. They pinpoint the sources and causes of waste.

Waste audits are conducted by gathering garbage (and/or recyclables), weighing it, examining it for contamination, and using the results as follows:

- Setting targets for new greening programs.
- Assessing current recycling efforts.
- Determining the percentage of materials in the garbage that should have been recycled under the current program.
- Measuring the results of new waste initiatives. The new statistics will show employees how much more is being diverted from landfill as well as the associated cost savings of the new initiatives.
- Complying with the 3Rs Regulations of MOEE which require a waste audit for any commercial, retail or business complex with 10,000 sq.m. floor area. (See Appendix III)

The materials usually, but not always, audited are: fine paper, newspaper, bottles and cans, organic waste, polystyrene, cardboard and garbage.

Waste audits can be done in a whole building or just in some areas which could include employee workstations, loading docks, mail rooms, print shops, etc.

Audits measure what is going to landfill as well as what is currently being recycled. They pinpoint the sources and causes of waste.

TYPES OF WASTE AUDITS

There are two basic methods of conducting waste audits.

- "Do it yourself" waste audit
- Consultant waste audit

"DO IT YOURSELF" WASTE AUDIT

The Environmental Co-ordinator and/or the ministry Green Team usually conducts this. This audit can obtain results with minimum costs.

The property manager and/or janitorial contractors will arrange for waste and recyclables to be set aside, floor by floor if possible, and brought to weigh stations and taken away afterwards. Or, if preferred, janitorial staff can tag bags floor by floor and bring all bags to a central location for the audit.

Garbage

► During the visual inspection, the auditors estimate and note the amount of contamination (materials in the garbage that should have been recycled).

► All the bags of garbage are counted and weighed. Details of the garbage are recorded and the source of recyclables in the garbage is identified where possible.

Recyclables

► Recyclables are usually audited at the same time as garbage. Recyclables in clear bags can also be examined for contamination.

► Weigh all streams separately, i.e. cans, bottles, paper, etc.

► Note weights and percentage of contamination.

➡ Use statistics obtained from audits (number of bags and weight in kilograms) as a benchmark for future waste reduction initiatives.

EQUIPMENT

The following equipment is essential to conduct a 'do it yourself' audit successfully.

CLEAR COLLECTION BAGS

These allow the contents of the bags to be seen. This gives a sense of what is going out as garbage or recyclables and how much contamination there is. The janitorial contractor should be advised that

these are necessary in case they have to be ordered specially.

RUBBER GLOVES

Auditors wear these gloves to protect themselves.

WEIGH SCALE

A digital scale is preferred as it is more accurate. Weigh scales can be rented from an equipment supplier or they may be borrowed from the ministry mail room.

DELIVERY CART OR BUGGY

This helps to move materials and equipment around if necessary. Again, the mail room may be able to loan a cart.

The following guidelines for an Environmental Co-ordinator who is conducting an audit for the first time were suggested by the Environmental Co-ordinator from the Ministry of Finance. The procedure guidelines are based on experiences conducting a waste audit in the ministry's Oshawa building. Follow-up audits should be done on the same week days as the previous audits to maintain consistency.

PROCEDURE

BEFORE

- ☐ Explain plans to your manager/director and get permission to proceed.
- ☐ Meet with janitorial contractor for building.
- ☐ Decide whether a total building audit will be done, or whether just representative floors will be audited.
- ☐ Identify weigh stations and make sure that the bags are taken away when you're finished.
- ☐ Encourage members of your Green Team to help you do the audit. (If a volunteer is a contract employee, check for liability insurance.)
- ☐ Decide on the three days for the waste audit.
- ☐ Do not inform staff as you want to conduct the audit under normal conditions.

DURING

- ☐ Collect garbage and recyclables the night before you begin your audit. For example if Tuesday, Wednesday and Thursday are your audit days, then Monday's garbage and recyclables are kept for examination on Tuesday.
- ☐ If conducting audits after hours in the late evening, advise your security department of your whereabouts and what you're doing.

- ☐ Keep hallways clean and have bags cleared as soon as possible. (Having janitorial tag and put the bags in the one place in the basement helps with this problem.)
- ☐ Be prepared to deal with complaints from staff, explain to them why the waste audit is necessary.

AFTER

- ☐ Publish results as soon as possible and follow up on areas where contamination is high.
- ☐ Thank co-auditors and manager for co-operation.
- ☐ Pass on the information to your ministry newsletter so they can spread the news.
- ☐ Decide on initiatives necessary to deal with the results of the audits.

TIMING IS EVERYTHING

- ☐ Time involved will depend on the size of your building and the number of people assisting you. On average, a 'do it yourself' waste audit of a floor will take approximately 20 minutes.
- ☐ Time of year—avoid holiday seasons. Audits should be done when most staff are working.
- ☐ Time of week—an audit should be conducted on three consecutive days, such as Tuesday to Thursday, to ensure maximum participation by employees.

EXAMPLES OF WASTE AUDITS

The following waste audits were done through the Green Workplace and reports are available from the Green Workplace, MBS.

1989/90

- 1) Kemptville College of Agricultural Technology
- 2) London Psychiatric Hospital
- 3) Guelph Correctional Centre
- 4) Office Buildings
 - 135 St. Clair Ave. West, Toronto
 - Queen's Park Complex, Toronto
 - Macdonald-Cartier Building, Kingston
- 5) McFarlane Lake Complex, Sudbury
- 6) Laboratories • MOEE
 - MOL
 - MOH

1992/93

- 1) Kemptville College of Agricultural Technology
- 2) London Psychiatric Hospital
- 3) Guelph Correctional Centre
- 4) Office Buildings
 - 135 St. Clair Ave. West, Toronto
 - Queen's Park Complex, Toronto
 - Macdonald-Cartier Building, Kingston
- 5) Maximum Green Audits (December '92, April '93)
 - MOEE, 135 St. Clair Ave. West, Toronto
 - ATG, 720 Bay Street, Toronto
 - MBS, Ferguson Block, Toronto

DO-IT-YOURSELF VS. HIRING A CONSULTANT

	"DO-IT-YOURSELF" AUDIT	CONSULTANT AUDIT
<i>Features</i>	<ul style="list-style-type: none"> • Staff do audit. • Usually consists of bag counts, weighing bags and visual inspection of the waste but with little sorting. • Staff decide format for report. 	<ul style="list-style-type: none"> • Consultant is paid to do audit. • Typically waste is sorted into categories, weighed and a formal report made with recommendations. • You tell consultant how you want the waste sorted and what kind of report you want.
<i>Pros</i>	<ul style="list-style-type: none"> • Cost primarily staff time. • Staff involved often become even more aware, informed, and enthusiastic about the waste management program. • Staff can do visual audits and get a report together in a very short time. • Staff can report back to other employees from personal experience, which can be very effective, especially to increase participation in recycling. • Audits can be done often to keep results current and to find out how changes in the program may be affecting the recycling rates, or for special situations. 	<ul style="list-style-type: none"> • Audit is more detailed and has greater accuracy in larger areas than staff audit. • May get better interpretation of results because consultant is more familiar with technical waste issues. • Needs less personal time and commitment by staff and Coordinator. • Consultant can give recommendations from a fresh and unbiased viewpoint.
<i>Cons</i>	<ul style="list-style-type: none"> • Staff might not be able to make the time commitment, since audits are best done after working hours. • Have to arrange for equipment. • Need to be prepared to deal with practical problems. • Results can be very general and not accurate and therefore, amount of real progress is difficult to confirm. 	<ul style="list-style-type: none"> • Because of cost, regular audits or audits for special situations like end of year file cleanouts, renovations, etc., are not always likely to be feasible.
<i>What you need</i>	<ul style="list-style-type: none"> • Time. • Willing staff. • Co-operation from janitorial staff. • Equipment to record information. • Safety equipment. 	<ul style="list-style-type: none"> • A clear Request for Proposals and precise agreement with consultant about what you want and when. • Plan ahead, think of the "what ifs". • Cover all the bases e.g. room for sorting and weighing, security clearance, 24 hr. number for janitor contact, electrical outlets for scales.

“Closing the loop” means buying goods that have recycled content. Every time materials are recycled to create a product, vast amounts of time, energy and money is saved because the product is not created from virgin materials. Buying goods with recycled content creates a demand for them. The market reflects that demand, prices drop and, in turn, requests for these goods increase, benefiting ‘green’ industries. ‘Closing the loop’ is very important—to the environment and to the economy.

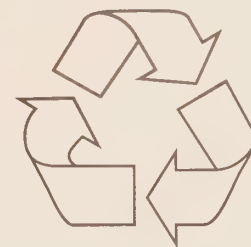
Goods with recycled content were originally produced from virgin or recycled materials, sold, used and recycled. They were deinked, remanufactured, reduced to pellets, etc. (depending on the type of material and finished product) and so became part of an entirely new product with recycled content.

Two statements are commonly seen beside the recycling symbol (known as the mobius loop). One says, for example, “This product contains 50 per cent post-consumer recycled content”, the other, for example, “This product contains 50 per cent post-industrial recycled content”.

“Post-consumer” means that the goods contain recycled products which have been used by people, like office paper being recycled to create wrapping paper, for instance. “Post-industrial” means that the goods contain recycled products used before by industry, off cuts from printing operations being sent back into paper making, for example.

CLOSING THE LOOP

The mobius loop represents the infinite use and reuse of materials.



MARKETS AND END USE OF RECYCLED PRODUCTS

Buying goods with recycled content creates a demand for them, which encourages recyclers to seek out recyclables to supply to manufacturers and this creates a market for recycled goods.

PAPER MARKETS

What is acceptable varies from recycler to recycler and is not necessarily geographically dependent. The price for fine paper varies, depending on the quality. For example, computer paper is one of the most desirable papers since it is consistently of a very high quality. Quality is defined by the thickness, strength and colour of the paper. Office paper can vary widely in quality and so is not as valuable as computer paper but is still more valuable than other materials.

Because the price depends so much on quality, it is important to keep contaminants out of the recycling containers, even though many recyclers sort through the paper. The following is a list of paper items recyclable in Metro Toronto and much of Southern Ontario. (The list is more limited in rural and Northern Ontario areas.)

MIXED FINE PAPER

- Post-it notes
- Kraft or brown envelopes
- NCR (*No carbon required*) paper
- Photocopier-paper wrappers
- Envelopes with windows or labels
- Fax paper (*glossy or regular bond*)
- Shredded paper (*remove carbons*)
- Letterhead
- Invoices
- Computer printouts
- Photocopied or laser-printed paper
- Forms and stationery, writing paper
- Coloured paper
- Manila file folders and envelopes
- Reports (*remove xerox bindings*)
- Books

(N.B. Staples can be left in paper, paper clips should be removed and reused.)

RECYCLED INTO ...

Fine paper and mixed paper (which include post-it notes, coloured paper, fax paper, kraft envelopes, etc.) are recycled into paper towels, paper tissues, office paper, envelopes, posters, writing paper, greeting cards, cardboard boxes, cereal boxes, etc.

NEWSPRINT MARKETS

NEWSPRINT

- Newsprint type material
- Glossy magazines and paper
- Newspapers
- Government directories
- KWIC Indexes
- Telephone directories

Every tonne of newsprint that is recycled saves approximately three cubic metres of landfill space. And using recycled paper saves the 17 trees required to yield a tonne of newsprint from 'virgin' fibre. The production of newsprint from recycled fibre requires less refining, and therefore uses fewer chemicals and consumes less energy.

Newsprint is in high demand. Recycling plants produce newsprint with 10–25 per cent recycled content and some plants are trying to increase that to 40 per cent.

RECYCLED INTO ...

Newspapers, magazines and phone books are de-inked to manufacture newsprint for future newspapers and flip-charts. Newsprint is used to make boxboard, molded paper products for the packaging of furniture and equipment, egg trays and seedling planters.

Newsprint can be chemically treated with fire-retardants and used

for insulation and other construction material such as drywall and gypsum board. It is also used to produce cat litter, animal bedding, and mulch for ground cover.

OLD CORRUGATED CARDBOARD (OCC) MARKETS

At one time, there was a glut of OCC and companies had to pay to get rid of it. Now, fibre is in such great demand that the Domtar plant in Cornwall is using OCC to make fine paper. This increases the value of OCC both to recycling companies and their customers.

Recycling companies pick up and/or buy OCC, and some municipalities provide curbside pickup. Even in some areas where full recycling programs are not available, it is not difficult to find a market for reasonable quantities of OCC.

RECYCLED INTO ...

OCC is used in the manufacture of new cardboard, boxboard, packing cases, planters and construction materials such as pegboard. Since it requires less chemicals and water than producing 'virgin' stock, recycling OCC is less of a burden on the environment.

BOXBOARD MARKETS

Boxboard is typically used in box packaging for things like cereal, facial tissues, stationery, office supplies, etc. Boxboard traditionally was not recycled because the quantities were unknown and the recycling processes were not fully researched. In the last few years, through pilot projects with several municipalities, boxboard recycling for the residential sector has

been shown to be viable. However, due to the relatively low quantities generated, boxboard recycling in the government is very limited.

RECYCLED INTO ...

It is used mainly in the manufacture of fibreboard and chipboard.

CANS (STEEL AND ALUMINUM) AND GLASS BOTTLES MARKETS

These are widely recyclable across the province since the residential Blue Box programs typically include these materials. In some parts of Northern Ontario, glass is not collected because of the expense to ship to market in Toronto.

RECYCLED INTO ...

Aluminum is used to make more aluminum cans, siding and other products. Steel is returned for smelting into numerous products. Glass is recycled into fibreglass, used in asphalt and in making other glass.

FOOD WASTE MARKETS

Food waste can be "recycled" through on-site or off-site composting or digesting facilities. (Please refer to the Composting section of this manual for more details.) If food waste is being managed at government institutions, it is usually through on-site facilities or the Ontario Science Centre in-vessel composter. However, municipalities and the MOEE will have details of any available central composting sites or those coming on line. If food waste management is desired where there are no such facilities, perhaps staff can take their own food waste and compost at home.

RECYCLED INTO ...

Nutrient-rich soil conditioner.

PLASTICS MARKET

Until recently, few markets existed for recycling plastics other than PET (Polyethylene tetracyclate) or polystyrene. If plastic buckets are generated in cafeterias and institutional kitchens, they can be reused, offered to staff to take home, returned to manufacturers, or listed with the Ontario Waste Exchange. Some correctional institutions have these buckets recycled.

POLYSTYRENE MARKETS

Polystyrene used in the food industry and in packaging is recyclable through the Canadian Polystyrene Recycling Association (CPRA) in Mississauga. Polystyrene is bulky and light which makes it difficult to transport economically without compacting and bulking it. But because of the danger from food contamination, frequent collection, with little or no storage time, is necessary. Therefore, there is little collection of small quantities—or collection outside the Greater Toronto Area.

RECYCLED INTO ...

Used polystyrene is washed and reformed into pellets used in the manufacturing of desk sets, rulers, scissors and other plastic non-food items.

OFFICE MATERIALS MARKETS

Items in disrepair could be sent to local ARC Industries or Community Living stores to be recovered or cleaned. These companies run workshops for developmentally challenged people. Goods may be sent to

charitable organizations, depending on ministry policy. The Ontario Waste Exchange will accept relatively large quantities of similar materials.

PACKAGING/WAREHOUSE MATERIAL MARKETS

Materials such as shrink wrap and other plastic containers may be recyclable but the market is limited. Some municipalities collect HDPE (High Density Polyethylene) and LDPE (Low Density Polyethylene)—detergent or cleaning supplies bottles—from households. This may lead to more recycling of these materials in the commercial, institutional sectors.

Wooden pallets are a high-use item in warehouses and can become a waste item. Once pallets are no longer reusable or repairable, they can be chipped and used as garden mulch or as amendment for composting. The pallets must not be contaminated with any chemicals and the chipping process must be able to remove any nails or other metals. Recyclers often charge to take old pallets away.

CONTACTS FOR MARKET CONDITIONS

The following associations/organizations are excellent sources of information on market conditions for recycling.

The Association of Municipal Recycling Co-ordinators (AMRC) in Guelph, the Recycling Council of Ontario (RCO) in Toronto and the Ministry of Environment and Energy. Local recyclers, Facility Managers of ORC and ministry Environmental Co-ordinators can be good sources of market information too.

METROWORKS

(Municipality of Metropolitan Toronto).

Free tours are offered at the following facilities: one water supply plant; three water pollution (sewage) plants; two transfer stations; one sorting facility for recyclable items and two landfill sites.

Please note they need two week's notice to book a tour.

For further information, please call

The Information Officer, Displays/Facility Tours (416) 392-9652

PAPER MILLS

Atlantic Packaging, Whitby (416) 298-8101

Quebec and Ontario Paper Mills (416) 461-3118

COMPOSTING UNITS

Brockville Psychiatric Hospital Vermiculture Units,

Jack Hewitt (613) 345-1461

London Psychiatric Hospital Composting Unit,

Beryl Anderson (519) 455-5110

Aylmer Ontario Police College Composting Unit,

Chris Raynard (519) 773-4204

Ontario Science Centre Composting Unit, Toronto (416) 429-4100

Civic Gardens Community Composting, Toronto,

Carolyn McSkimming Pereira (416) 392-5807

QUEEN'S PARK

Xeriscape Garden at Queen's Park (416) 314-8192

Energy-efficient lighting in Queen's Park (416) 926-4200

MAX GREEN PILOT BUILDINGS

Ferguson Block, MBS – Jim White (416) 327-2840

135 St. Clair Ave. W. Toronto, MOEE – Kirsten Mania (416) 323-4675

720 Bay St. Toronto, ATG – Maureen Adamson (416) 326-4067

Canadian Polystyrene Recycling Association (905) 612-8290

Stelco Steel (905) 528-2511 ext 2817

Metro Waste Paper Recovery Inc., Scarborough (416) 297-7556

Recycling Council of Ontario Annual Conference (416) 960-1025

**PLACES TO VISIT TO SEE
THE 3R_s IN ACTION**

Tours can be arranged to visit the places listed. Each has its own rules regarding number of visitors, times, etc. Please call ahead to arrange tour times and get instructions.

REFERENCE INFORMATION

PUBLICATIONS

CONTACT

<i>Harmony Foundation's Workplace Guide</i>	Harmony Foundation (604) 380-3001
<i>The Green Workplace</i>	The Green Workplace
Maximum Green "How To" Guide	(416) 327-3777
Composting in Ontario Government Facilities	
Organic Waste Management Study (Government	
Residential and Institutional Facilities, June /94)	
Recyclers' Directory	
Fact Sheets	Electronic Mail
	Green Transportation
	Green Workplace (1 & 2)
Pamphlets	Xeriscape Garden, Queen's Park
	Composting hits <i>paydirt</i>
Report	1993/94 Results Report

ORGANIZATIONS

Ontario Waste Exchange	(905) 822-4111
Guelph Correctional Centre	(519) 822-0020
Trilcor Products and Marketing	(705) 494-3354
(Ministry Solicitor General/Correctional Services)	
Association of Municipal Recycling	(519) 823-1990
Co-Ordinators (AMRC)	
Recycling Council of Ontario (RCO)	(416) 960-1025
MOEE Public Information Centre	(416) 323-4321

NORTHERN REGION

SUDBURY

- Blue Box program in place collecting PET, cans (100 oz. incl.) glass newspaper, magazines, fine paper and OCC.
- Grease Recycling—Rothsay
- *Contact:* NIM Disposal – Erica Greenspoon (705) 566-9363

SAULT STE. MARIE

- Blue Box Program in place collecting PET, cans (100 oz. incl.) glass, newspaper and fine paper.
- Lemieux Central Composting still in operation taking mainly leaf and yard waste.
- *Contact:* City of Sault Ste. Marie – Bill Pletsch (705) 759-5380

PARRY SOUND

- Blue Box program in place collecting PET, cans (100 oz. cans incl.) glass, plastics (yogurt containers), newspaper, OCC, boxboard, mixed household paper, glossy magazines and catalogues, polycoated milk and juice cartons and polystyrene. As of May 2, 1994 the program expanded to include egg cartons, kraft bags and aluminum trays and foil.
- Association of Municipal Recycling Co-Ordinators (AMRC) representative: *Contact* – Kim Arnold (705) 746-4213

TIMMINS

- No Blue Box Program in place. Fine paper is transported to Arc Industries in Iroquois Falls. Present recycler's business is on hold indefinitely.
- *Contact:* AMRC Representative: Karen Manol (705) 264-1331

NORTH BAY

- Blue Box Program in place collecting PET, newspaper, fine paper, glass, cans and OCC.
- Grease Recycling—Rothsay
- *Contact:* AMRC Representative: Al Tomek (705) 474-0400

THUNDER BAY

- Blue Bag program in place recycling newspaper and flyers from residences. Cans and fine paper are being recycled for the IC&I sector.
- *Contact:* Public Works Dept: Rick Latta (807) 625-3392

KENORA/FORT FRANCES

- Blue Box program in place recycling newspaper, magazines, catalogues, flyers, softcover books, glass, plastics #3, fine white paper, telephone books, aluminum and tin cans. A pilot project for the summer of 1994 will collect OCC for Dryden and Sioux Lookout.
- Composting—Leaf & Yard.
- *Contact:* Gurdie Russel, Northern Recycling Association (NORA) (807) 223-2367

HAILEYBURY

- No Blue Box program has been implemented to date.
- Composting—Central leaf & yard composting may happen over the next year.
- *Contact:* James Smith, Town of Haileybury office (705) 672-3363

LINDSAY

- A Blue Box program is in place recycling newspaper, PET, aluminum/steel cans and glass. As of

APPENDIX I

SOME 3Rs PROGRAMS AVAILABLE IN THE REGIONS

The following list was developed to give institutions and regional offices an idea of what is available to set up a 3Rs program. The list does not cover all of Ontario, but for the area it does cover, it offers possibilities to cut waste by using available recycling services. The contact name in all cases is the person responsible for the 3Rs in that area. This list is current as of September 1994.

May 1994 a Blue Box program will be expanded to include HDPE, PET, OCC and boxboard.

- Composting—leaf & yard composting.
- *Contact:* Neil Bailey, Town of Lindsay office (705) 324-6171

BARRIE

- Blue Box program in place collecting PET, cans, glass, newspaper, OCC, phone books and boxboard
- Composting—Leaf and Yard curbside collection.
- Grease Recycling—McClellan Disposal
- *Contact:* AMRC Representative – Mark Collins (705) 726-4242

MULMUR TOWNSHIP

- Depot system in place recycling paper, glass, cans, PET, newspaper and OCC.
- *Contact:* Linda Robinson, Mulmur Township office (705) 466-3341

EASTERN ONTARIO

BROCKVILLE

- Blue Box program in place recycling PET, glass, cans, paper, newspaper, OCC and telephone directories.
- Composting—Leaf and yard composting with a possible link to the new Corrections Canada (CORCAN) project.
- Grease Recycling—Rothsay
- *Contact:* AMRC Representative – Valerie Harvey (613) 342-8772

KINGSTON

- Blue Box program in place recycling glass, cans, paper, newspaper, PET, boxboard, OCC, magazines, telephone directories, HDPE, poly-

styrene, film plastics, aluminum trays and foil.

- Composting—May '94 area haulers started offering food waste collection to IC&I sector at a cost of \$70/tonne through the CORCAN project.
- Grease recycling—Rothsay
- *Contact:* AMRC Representative – Joe Davis (613) 546-8523

PETERBOROUGH

- Blue Box program in place recycling PET, cans, newspaper, paper, glass and boxboard to be added.
- Composting—Leaf and yard waste.
- *Contact:* AMRC Representative – Ivan Bateman (705) 748-8890

PEMBROKE

- Blue Box program in place collecting all regular materials expanded to include boxboard, film plastics, milk/juice cartons, OCC, magazines, aluminum, #1 & #2 plastics and textiles.
- Grease Recycling—Rothsay
- *Contact:* AMRC Representative – Karen Fischer (613) 735-7537

LANARK COUNTY

- Recycling Depot program in place recycling PET, cans, glass, newspaper, magazines, catalogues and OCC.
- Composting—Leaves at landfill site.
- Grease—Renown Recycling
- *Contact:* AMRC Representative – Jeff Kohl (613) 267-4200

OTTAWA

- Blue Box program in place recycling PET, cans, glass, newspaper, fine paper, OCC, magazines and catalogues, and aluminum foil.

- Composting—biweekly leaf and yard curbside collection.
- Grease recycling—Rothsay
- *Contact:* AMRC Representative – Mark Woods (613) 560-2050

CORNWALL

- Blue Box program in place recycling boxboard, glass, aluminum trays, foil, newspaper, magazines, cans, HDPE, PET, OCC.
- Composting—Leaf and yard composting in early 1995.
- Grease recycling—Rothsay
- *Contact:* AMRC Representative – Bill deWit (613) 937-1777

COBOURG

- Blue Box program in place recycling fine paper, glossy magazines, telephone books. The program will be expanded to include boxboard, HDPE, OCC and film plastics.
- Composting—Leaf and yard composting.
- Grease recycling—Rothsay
- *Contact:* AMRC Representative – Mary Little (905) 372-3329

CENTRAL & SOUTH HASTINGS

- Blue Box program in place recycling OCC, magazines, newspaper, plastics (HDP, rigid, film, PVC, tubs, polystyrene). The program will be expanded to include boxboard, milk cartons and textiles. The IC&I sector also includes fine paper.
- Composting—A new IPS system to be constructed in Trenton, Ontario to handle IC&I organic waste. Awaiting Certificate of Approval.
- *Contact:* Wallace McKinnon (519) 433-2660.

- Grease recycling—Rothsay, local renderers
- *Contact:* Jill Dunkley (613) 394-6266

NAPANEE

- Blue Box program in place recycling newspaper, magazines, OCC, rigid plastics and polystyrene, aluminum trays and foil, glass bottles/jars, metal food and beverage cans, textiles, plastic bags and boxboard.
- Composting—Leaf and yard waste. A 1994/95 bioconversion plan being developed to handle municipal sludge, chicken manure, and leaves. May link up with Trenton project.
- Grease recycling—Rothsay
- *Contact:* Jack Parks (613) 354-3351

HAWKESBURY

- Blue Box program in place for OCC, boxboard, plastics #1,2, magazines, phone books.
- *Contact:* Doris Dumas (613) 678-5266

WHITBY

- Blue Box program in place recycling cans, glass, PET, OCC, newspaper and telephone books.
- Composting—Central leaf & yard waste.
- Grease recycling—Rothsay
- *Contact:* Murray Gale (905) 668-3437

SOUTHWESTERN REGION

LONDON

- Blue Box program in place recycling newspaper, steel/aluminum cans, glass and PET.
- Composting—Leaf and yard waste.
- Grease—Rothsay
- *Contact:* Martin Zimmer (519) 661-5419

BRANTFORD

- Blue Box program in place recycling glass, aluminum/steel cans, HDPE, rigid plastics, PET, newspaper, OCC, and telephone books. This program will be expanded in 1994 to include boxboard, film plastics and magazines.
- Composting—Leaf & yard waste.
- Grease recycling—Rothsay
- *Contact:* Nicole Monday (519) 759-1350

CHATHAM

- Recycling depots setup for plastics #1,2, newspaper, clear glass, aluminum and tin cans.
- Composting—Leaf and yard.
- *Contact:* Wayne Pollock (519) 352-5540

NIAGARA FALLS

- Blue Box program in place recycling newspaper, cans, plastics #1,2, PET, glass, glossy magazines and telephone books. This program will expand 1994-95 to include HDPE, rigid plastics, PVC, OCC and boxboard.
- Composting—Leaf and yard.
- Grease recycling—Rothsay
- *Contact:* Frank Lewis (519) 227-6613

GUELPH

- Blue Box program in place recycling newspaper, glass, aluminum/steel cans, PET with expansion to egg cartons, HDPE, and telephone books.
- Composting—pilot wet/dry (food and yard waste) with residential.
- Grease recycling—Rothsay
- *Contact:* Leah Dosich (519) 837-5604

OWEN SOUND

- Four recycling depots in place recycling OCC, glass, steel/aluminum cans, newspaper, magazines and PET.
- Grease recycling—Rothsay
- *Contact:* Chris Hughes (519) 376-4274

CITY OF WATERLOO

- Blue Box program in place recycling newspaper, glass, aluminum/steel cans and PET. This program has been expanded to include OCC, telephone books and motor oil.
- Composting—Leaf and yard waste.
- Grease recycling—Rothsay
- *Contact:* Susan Sauve (519) 747-8612

GODERICH

- Blue Box program in place recycling newspaper, shopping bags, glass, telephone books, plastics #1 and 2 aluminum/steel cans, aluminum foil/plates, boxboard, OCC and film plastics.
- Composting—Three annual pickup days for leaf and yard waste which is taken to Hensall Composting.
- *Contact:* Barb Mackenzie (519) 524-8344

SARNIA

- Blue box program in place recycling newspaper, aluminum/steel cans, PET, glass, HDPE, and rigid plastics. This program has been expanded to include OCC, clear HDPE, flyers, white and coloured computer paper.
- Composting—Leaf and yard waste.
- Grease recycling—Laidlaw, Phillip Environmental
- *Contact:* Frank Velle (519) 332-0330

ESSEX/WINDSOR

- Blue Box program in place recycling PET, newspaper, glass, aluminum/steel cans. In 1994 the program was expanded to include magazines and foil. A pilot program in Essex will be done to recycle narrow neck plastics, HDPE, vinyl, polystyrene and OCC.
- Composting—Pilot program for the residents of Essex (6,000 approx.). Three stream system to collect organics including cooked meat and dairy products. The IC&I sector may be added two years after the pilot.
- Grease recycling—Rothsay
- *Contact:* Steve Stephenson (519) 776-6441

SIMCOE

- Blue Box program in place to recycle steel cans, #1 and 2 plastics, newspaper, and batteries. This program will be expanded to include OCC, film plastics and polystyrene.
- *Contact:* Jake Westerhof (519) 587-4911

WALKERTON

- Blue Box program in place to recycle glossy magazines, plastics (screwtop lid), newspaper, cans. Depots are set up for OCC and fine paper is being collected from schools and institutions.
- *Contact:* AMRC Representative – Bruce Rondall (519) 881-1782

STRATFORD

- Blue Box program in place recycling newspaper, glass, cans, PET, #1 and 2 plastics, magazines and OCC.

- Composting—Leaf and yard.
- Grease recycling—Rothsay
- *Contact:* Lyndon Kowch (519) 271-0250 Ext. 279

HAMILTON-WENTWORTH

- Blue Box program in place recycling newspaper, magazines, aluminum/steel cans, OCC, PET, HDPE, glass, aluminum pie plates, foil, telephone books and plastic grocery bags.
- Grease recycling—Rothsay
- *Contact:* Beth Goodger (905) 546-2671

WELLINGTON COUNTY

- Blue Box program in place recycling newspaper, aluminum/steel cans, glass bottles/jars, PET, magazines, and telephone books. Through the STAR program, 80 schools are recycling fine paper. In Fergus, Elora, Arthur and Erin, the IC&I are recycling OCC.
- Composting—central composting in 1996 to join up with Guelph wet/dry system.
- Grease recycling—Rothsay
- *Contact:* Donald Taylor (519) 837-2600 Ext. 231

OAKVILLE

- Blue Box program in place recycling newspaper, cans, glass, polystyrene, PET, HDPE bottles, aluminum foil and pie plates, #6 foam containers and food trays, small neck bottles, magazines, catalogues, and phone books, fine paper, flyers, hard and soft cover books, OCC and boxboard.
- Composting—Possible future leaf and yard waste.

- Grease recycling—Rothsay
- *Contact:* Mark Jones (905) 845-6601

HALTON REGION

- Blue Box program in place recycling newspaper, aluminum and steel cans, glass and PET. As of February 1994, the program was expanded to include polystyrene, aluminum foil, boxboard, fine paper, telephone books, magazines, and hard and soft cover books.
- Composting—Leaf and yard depots at landfill site.
- Scott's Farm—collects IC&I food waste.
- Grease Recycling—Rothsay
- *Contacts:*
John Smith (905) 825-6000 x7687
Phillip Antonio (905) 878-7211
(Town of Milton)

REGION OF PEEL

- Blue Box program in place recycling glass, newspaper, aluminum/tin cans, plastic, phone books, OCC, magazines and textiles. Mississauga and Brampton depots also take scrap metal, wood, OCC, tires, textiles, fine papers, boxboard, glass, cans, foils, newspaper and reusable goods.
- There is also curbside collection for white goods, Christmas trees and leaves.
- Composting—central leaf and yard composting.
- *Contact:* AMRC Representative Glen Williams or Christine Giorno (905) 791-7800

AEROBIC CONDITIONS

A situation in which there is an adequate supply of oxygen available (e.g. a compost heap that is mixed, or turned over, regularly).

ANAEROBIC CONDITIONS

A situation in which there is an inadequate supply of oxygen available (e.g. within the well-compacted waste at a landfill site).

BALING

The mechanical compression of waste or recyclable materials into rectangular bales. Bales are easier to handle, store and transport than loose waste.

BIODEGRADABLE MATERIAL

Items, or chemicals, capable of being broken down, or decomposed, by natural biological processes, usually involving oxygen, moisture and micro-organisms such as bacteria. *It is a mistake to assume that the processes are quick, produce harmless products and are necessarily good for the environment.*

BLEACHING

The whitening of something, such as paper or fabric, often using chemicals. When chlorine is used as the bleaching agent, the resulting effluent is toxic.

BOXBOARD

Stiff paper packaging, often called cardboard, used for cereal, tissue and detergent boxes; not to be confused with corrugated cardboard.

CLOSED-LOOP RECYCLING

Converting used material into

material the same as, or similar to, the original (e.g. used newspapers into new newsprint and glass jars into glass bottles).

COMPOST

Partially decomposed organic matter which can be added to soil as a source of nutrients and a conditioner.

CONSERVER SOCIETY

A society whose responsible citizens make concerted efforts to reduce consumption of energy and material resources.

CORRUGATED CARDBOARD

Stiff paper packaging made of two flat layers on the outside and a ridged layer in the middle. Not to be confused with boxboard.

CRADLE-TO-GRAVE MANAGEMENT

An approach to managing wastes, usually industrial and hazardous wastes, from the point of generation (the 'cradle') to the final point of treatment and disposal (the 'grave').

CULLET

Glass that has been intentionally crushed prior to being mixed with other raw materials to make new glass products.

DE-INKING

A chemical process which removes ink from recyclable paper. Often harmful wastes are produced. Recycling paper materials does not always include de-inking.

APPENDIX II

The following list is taken from the

Ministry of Environment and Energy's

"SOLID WASTE MANAGEMENT:

A GLOSSARY OF TERMS". Although

most of the terms do not appear in

this Best Practices

Guide, the list is a valuable source of

information for

those involved with

solid waste

management.

DISPOSABLE PRODUCT

Something designed to be thrown away after one, or just a few, uses.

ECOSYSTEM

Any given area of the earth where living organisms interact with non-living things in an exchange of matter and energy (e.g. oxygen, nitrogen, water, carbon dioxide, etc.).

EFFLUENT

Liquid waste, often from industrial processes. In many cases, effluent contains harmful contaminants which must be removed by a treatment process before it can be released into the environment.

EMISSIONS

Waste, often from industrial processes, in the form of gasses or fine particulates released into the atmosphere. In many cases, air emissions into the environment contain harmful contaminants which must be removed to acceptable concentration levels.

ENVIRONMENTAL CHOICE

A label allowed by the federal government on particular items or brands which meet specific criteria; indicates that these items or brands are considered less harmful for the environment than others.

ENVIRONMENTAL ASSESSMENT (EA)

A detailed environmental study of a proposed project. The study includes an assessment of the need for the project; various alternatives to the project; potential social and environmental impacts; methods to

reduce the potential for any negative effects; methods to remediate any problems which do occur; and monitoring techniques and frequency.

ENVIRONMENTALLY FRIENDLY

A term which many people think means 'good for the environment'. Since the manufacture, use and disposal of most products are *not* good for the environment, this term is misleading and often used as a marketing tool. If this label is used honestly, it may mean that the product or package causes less harm than others based on current information.

ENVIRONMENTALLY RESPONSIBLE

A term used to describe activities carried out, or choices made, when the people making the decision have taken into account the potential impact of those activities, or choices, on the environment. Note that it is not the products, but the decisions, which are environmentally responsible (e.g. the choices to buy bulk food items and to carry reusable shopping bags back to the stores).

FINE PAPER

Good quality paper such as that used for photocopiers, computers, legal documents and writing; has long cellulose fibres. Can easily be recycled.

GARBAGE

Used material people no longer want and for which they can find no further uses. Unfortunately, much of what we call garbage often contains many reusable or recyclable items.

GARBAGE-FREE LUNCHES

Lunches using reusable containers and utensils. Leftover food from a lunch goes into a composter. As a result, nothing becomes classified as 'garbage'.

GARBURETOR

Small electrical apparatus, usually attached to the kitchen sink for grinding organic wastes before flushing them down the drain. They waste electricity and water and may put a strain on the community's sewage treatment plant or family's septic system. Organic wastes should be composted instead.

GROUNDWATER

Water which exists in underground passageways in rocks and which flows in response to gravity; often the source of water for communities.

HAZARDOUS MATERIALS

Things which are potentially harmful to living organisms because they are corrosive, inflammable, reactive or toxic. These items are not usually included with municipal solid waste.

HUMUS

Nutrient-rich material resulting from the natural decay of organic material in the soil; similar to compost.

INORGANIC MATERIAL

Material which is not derived from plants or animals; i.e. does not contain carbon.

LANDFILL SITE

An area of land used for the burial of wastes under controlled conditions. Landfilling involves the

compaction of waste in sections, called "cells".

LEACHATE

The liquid which results when rain or melting snow percolates through a material and carries with it dissolved materials picked up as it moves.

LIFE-CYCLE ANALYSIS

A way of determining the total amount of resource and energy used and waste generated by a particular product at all stages of its development. Life-cycle analysis is still a relatively new science. It helps to compare the relative environmental impact of two or more types of products and packaging.

LOW-GRADE PAPER

Paper which contains short cellulose fibres, has been chemically treated or had a special coating applied. Often of less value for recycling.

MOBIUS LOOP

Originally a mathematical symbol. A modified Mobius loop has been adopted as symbol for recycling because it conveys the infinite use and reuse of materials. Its three arrows represent the three states of matter which can be recycled: solids, liquids and gases.



This symbol means that a product or packaging is potentially recyclable. However, use of this symbol may be misleading. A used material is recyclable if it is accepted by a community's recycling program. If it is not, then it is not really recyclable in that particular community.



This symbol means that a product or packaging contains recycled materials. This symbol has also been much abused. Properly used, the symbol should be accompanied by information indicating the percentage of recycled content and whether it is pre-consumer or post-consumer waste that has been recycled.

POLYCHLORINATED BIPHENYLS (PCBS)

A group of very stable organic compounds. PCBs had a variety of uses, mostly as electrical insulating fluids, until the mid-1970s, when they were banned for use in Canada. In Ontario, anything containing PCBs is considered to be a hazardous material.

POLYETHYLENE TEREPHTHALATE (PET)

A lightweight, strong, transparent plastic; used to make large carbonated, soft drink bottles.

POLYSTYRENE (PS)

A plastic foamed to make clothes hangers, rulers and various containers. Originally made using CFCs and HCFCs, foamed polystyrene is now made using pentane, carbon dioxide or other gases as the foaming agent. Styrofoam is the commonly-used brand name of a blue-coloured foamed polystyrene rigid insulation.

POST-COMMERCIAL WASTE

Materials remaining at the end of any manufacturing process which are returned to that process to make more products (e.g. trimmings and cuttings at a pulp and paper mill).

POST-CONSUMER WASTE

Materials previously used by consumers at various locations, such as homes, offices, stores and institutions and collected for recycling (e.g. cardboard boxes, photocopies, old notebooks, glass bottles, cans).

POTABLE WATER

Water which is suitable for drinking by humans and for cooking. Sources include groundwater aquifers and lakes and rivers.

PRODUCT STEWARDSHIP

An approach to waste management which recognizes the responsibility of a product or packaging manufacturer to control/monitor the manufacture, shipment, storage, use and final disposal of any product.

TIPPING FEE

The amount of money charged by the operator of an approved waste disposal facility for receiving and managing waste.

VERMICOMPOSTING

Composting using worms to digest the organic materials provided; can be done indoors.

For a copy of the full glossary or for more information on waste issues contact:

Ministry of Environment and Energy, Public Information Centre (416) 323-4321

In April 1994, MOEE passed regulations mandating source separation of waste and waste audits and work-plans for industrial, commercial and institutional sectors. This is part of MOEE's Waste Reduction Action Plan to reduce waste going to disposal by at least 50 per cent by year 2000.

These regulations apply specifically to non-hazardous solid waste from office buildings of 10,000+ square meters, educational institutions of 350+ enrolled students or manufacturing establishments of 100+ full-time equivalent employ-

ees. The owner of the building or operators of the educational institution are responsible for meeting the requirements of the legislation which had a compliance date of September 3, 1994.

There is a copy of MOEE'S 'Major IC&I Waste Gener-ators Designated Under The 3Rs Regulations' overleaf.

The legislation affects about 50 buildings which the Ontario Government owns.

APPENDIX III

3Rs

REGULATIONS

This chart indicates major IC&I waste generators designated under the 3Rs regulations.

Buildings included are retail shopping establishments, retail shopping complexes, construction projects, demolition projects, office buildings, restaurants, hotels and motels, hospitals, educational institutions and manufacturing establishments.

MAJOR IC&I WASTE GENERATORS DESIGNATED UNDER THE 3Rs REGULATIONS	
IC&I FACILITY/PROJECT	MINIMUM SIZE
RETAIL SHOPPING ESTABLISHMENTS applies to owner of establishment that sells goods or services at retail to persons who come to the establishment.	10,000+m in floor area or occupies space in a designated retail complex and solely responsible for its own waste management.
RETAIL SHOPPING COMPLEXES applies to owner of a complex that contains premises occupied by retail shopping establishments.	10,000+m in total floor area.
CONSTRUCTION PROJECTS applies to person who, on his/her own behalf or on behalf of another person, undertakes construction of one or more buildings including residential, industrial, commercial or institutional buildings.	Construction projects 2,000+m in total floor area.
DEMOLITION PROJECTS applies to person who, on his/her own behalf or on behalf of another person, undertakes demolition of one or more buildings including residential, industrial, commercial or institutional buildings.	Demolition projects 2,000+m in total floor area.
OFFICE BUILDINGS applies to owner of building used for offices.	10,000+m in total floor area for offices.
continued on page 67	

MAJOR IC&I WASTE GENERATORS
DESIGNATED UNDER THE 3Rs REGULATIONS *(continued from page 66)*

IC&I FACILITY/PROJECT	MINIMUM SIZE
<p>*RESTAURANTS</p> <p>applies to owner of a restaurant, including take-out, where food or beverages are prepared on site and offered for immediate sale to the public; does not apply to restaurants which co-operate in waste audits in retail complexes, office buildings, hotels/motels, hospitals or educational institutions.</p>	<p>10+ full-time employees and/or equivalent in part-time employees.</p>
<p>HOTELS AND MOTELS</p> <p>applies to owners of facilities with sleeping accommodations for temporary stays, including inns, resorts or hostels.</p>	<p>75+ units</p>
<p>HOSPITALS</p> <p>applies to operators of hospitals as defined under the Public Hospitals Act.</p>	<p>Class A, B or F in Regulation 964, RRO 1990</p>
<p>*EDUCATIONAL INSTITUTIONS</p> <p>applies to operators of public and private elementary, secondary, or vocational schools; training academies; colleges and universities; and any business facilities that are used for education.</p>	<p>350+ enrolled students during calendar year at a location or campus.</p>
<p>MANUFACTURING ESTABLISHMENTS</p> <p>applies to owners of a manufacturing establishment.</p>	<p>100+ full-time employees and/or equivalent in part-time employees.</p>
<p>*Designated facilities which drop below the minimum size in a calendar year remain designated under the regulation for another two years.</p>	



BACKGROUND

Energy conservation depends not only on what facility management does but also on tenant behaviour.

Faced with rising oil prices, the Ontario government initiated a program in the early 1980s to reduce energy use in its facilities and, in fact, achieved a significant reduction of more than 20 per cent by 1987. With oil prices stabilizing, the pressure was off for several years. However, in the late 1980s, attention was again focused on energy consumption with concerns being raised about CO₂ emissions, nuclear waste and rising hydro-electric prices.

REDUCING ENERGY USE IN THE OPS

The energy costs for provincially owned facilities have become more than 50 per cent of operating budgets. With energy costs rising and environmental concerns in the forefront, the Ontario government made a commitment in 1992 to improve its energy performance in its owned and operated facilities by a further 20 per cent by the year 2000.

Over the past 20 years, technology has affected energy use significantly. On the energy efficiency side, there are now more energy efficient lighting and heating systems; computer controlled monitoring and control systems for heating and ventilation systems; energy efficient photocopiers, automatic turn-offs for computers and proximity activated lighting. On the consumption side, each work station in the government is using more energy with the

introduction of more electronic equipment such as personal computers, laser printers, and fax machines.

FACILITY MANAGEMENT

To track its energy performance, MBS initiated a system called FASER (Fast Accurate System for Energy Reporting). FASER records all energy used in owned and operated facilities and compares it to past history to determine where energy reductions can be made.

In 1991, MBS, in partnership with MOEE, introduced the GEM (Government Energy Management) program.

Initially, over 800 energy audits were done by Ontario Hydro on government facilities. A financing program was set up to retrofit buildings by installing more energy-efficient technology. The financing program works on the basis of lease purchase agreements where the savings achieved pay for the retrofits over a period of time (usually less than five years).

When a Facility Manager investigates the possibility of retrofitting a building, here are some of the energy-saving options available:

- 💡 T8 energy-efficient lighting
- 💡 Conversion to natural gas
- 💡 Computer controlled HVAC systems
- 💡 Proximity lighting
- 💡 Building envelope
 - windows
 - doors
 - insulation

- 💡 Energy-efficient motors
- 💡 Energy-efficient cooling systems

Even if retrofitting the hardware isn't an immediate option in a building, the following so-called "soft measures" can result in substantial energy savings.

Facility Management can contribute to this energy saving by:

- Setting up signs to encourage building users to conserve energy
- Turning off lights not in use during the business day
- Setting back thermostats
- Turning off non-essential equipment
- Ensuring doors, etc. are closed to maintain air flow
- Installing low-flow faucets which reduce use of hot water

ENVIRONMENTAL CO-ORDINATORS

Environmental Co-ordinators can encourage energy conservation in various areas of the ministry by promoting these energy savings habits. The decision-makers (Purchasing Officers, Fleet Administrators, etc.), and the staff generally, can be targeted and asked to:

- Purchase energy efficient equipment: (i.e. photocopiers, printers, computers)
- Turn off lights and equipment when not in use, at nights and on weekends

- Keep air vents clear of files, etc.

- Shut doors
- Use distribution lists. Do not photocopy
- Use E-Mail
- Obtain regular vehicle tuneups
- Ensure proper tire pressure on vehicles is maintained
- Encourage use of Share-A-Ride
- Use public transit

REDUCING ENERGY USE IN THE OPS

ENERGY-SAVING TIPS FOR HOME

The Environmental Co-ordinator can make staff aware of these following energy-saving ideas for home. People will not only save energy, but they may notice a reduction in their energy bill by following these simple tips:

- Purchase energy efficient lights
- Shut off lights
- Purchase a thermostat set-back to have heat reduced at night and when the home is not in use
- Look at energy-efficient furnaces
- Have heating and ventilation equipment serviced regularly
- Install timers for lights
- Seal cracks and make windows draft free
- Use low-flow faucets and shower-heads
- Keep cars tuned up and ensure proper tire pressure



BACKGROUND

The Government of Ontario, through its Water Efficient Ontario Strategy, has a goal of maintaining water consumption at 1991 levels to the year 2011.

Implementing a program for water reduction in Ontario government workplaces will alleviate the strain on the water delivery system and on the subsequent disposal of sewage. And it will demonstrate to the Broader Public Sector (BPS) and the public that water reduction is possible and economically feasible.

EXISTING FACILITIES

While undertaking retrofits or designing new buildings may not be part of their mandate, Environmental Co-ordinators can try to influence the decision-makers in these areas and encourage them to introduce water conservation methods into their ministries. As soon as the decision is made to proceed with any water-saving actions, the Communications Branch should be involved to arrange signage, fact sheets and explanation of the retrofitting programs.

Based on the results of showcase demonstration projects, retrofitting existing facilities is a means toward achieving an overall reduction in water consumption.

Environmental Co-ordinators can meet with facility management staff and discuss the possibility of doing retrofits in some or all of their ministry's existing buildings. Where major retrofits are planned, a "performance contract" with an Energy Service Company (ESCO) is an option. These companies retrofit the

building with water conservation equipment and are paid back from the savings accrued.

WAYS FOR FACILITY MANAGERS TO REDUCE WATER CONSUMPTION RETROFIT

It may not be possible, or even appropriate based on business case principles, to re-trofit a particular building with all the equipment listed below.

Public Areas

- ≈ Ultra low-flow aerators (0.5 U.S. gallons per minute [USgpm]) on all faucets
- ≈ Sensor-operated faucets in washrooms
- ≈ Sensor-operated urinals
- ≈ Low-flush toilets and flush-valves (13 litre tanks, Aug. '93; 6 litre tanks Jan. '96)
- ≈ Dish-cleaning and waste-removal systems which filter out grease and food waste from the washing machines and plate-scraping areas in kitchens. These systems reduce the need for grease traps and associated maintenance

Client & Staff Areas

- ≈ Ultra low-flow aerators (0.5 USgpm) on all faucets
- ≈ Controlled volume faucets
- ≈ Sensor-operated urinals
- ≈ Flush valve mechanism and flow restrictors in toilet flush valves
- ≈ Low-flow shower heads
- ≈ Dish and clothes washing systems which recycle rinse water in the wash cycle

OTHER WATER CONSERVATION METHODS

Grounds-keeping practices

By changing grounds-keeping practices in simple ways, Facility Managers can further enhance their water conservations efforts.

- ≈ Eliminate sidewalk spray downs
- ≈ Exchange annual plants for flowering perennial plants and shrubs, which tend to be more drought tolerant
- ≈ Mulch all flower and garden beds to reduce evaporation
- ≈ Raise mower blade height to leave turf longer
- ≈ Overseed turf areas with drought-tolerant grass seed in spring and fall
- ≈ Water gardens and turf between 6 a.m. to 10 a.m. or 3 p.m. to 6 p.m. to reduce surface evaporation, automate if possible

Purchasing/building maintenance

Facility Managers can change their purchasing and building maintenance habits by:

- ≈ Eliminating use of toxic or hazardous materials and the chance of them being put down the drain, by using biodegradable and phosphate-free cleaning solutions and grease trap cleaners
- ≈ Encouraging janitorial cleanup services to use water effectively
- ≈ Establishing maintenance and inspection procedures for all water and sewer systems
- ≈ Arranging utility bill audits
- ≈ Reusing building system water (i.e. chillers) and captured rain water for irrigation
- ≈ Converting water cooling to non-CFC chillers

COMMUNICATIONS FOR
WATER CONSERVATION

In order to inform staff of water conservation actions, Facility Managers and ministry Environmental Co-ordinators can work together to:

- ≈ Display posters and promotional material to communicate retrofit projects
- ≈ Explain reasons for retrofitting programs to public and staff, and encourage changes to water-abusing habits
- ≈ Inform public and staff of water saved by retrofitting
- ≈ Encourage the public and staff to report leaking faucets and toilet valves, or valves that fail to shut off completely, to Facility Manager's office
- ≈ Encourage staff to use water fountains for drinking water, (municipally treated water regularly tests at a higher quality than bottled water)

An example of communicating a retrofit...

The washrooms on the second floor of the Macdonald Block at Queen's Park were retrofitted with sensor-operated faucets. Special signs were developed and placed on the washroom doors to identify what was happening and why. This generated interest in, and support for, this project from the public and the OPS staff.

NEW FACILITIES

New facilities can incorporate environmentally conscious specifications at the building design stage. Water conservation elements which can be installed in new facilities include the following.

- ≈ Low-flow toilets
- ≈ Sensor-operated urinals
- ≈ Ultra low-flow aerated faucets and sensor-operated faucets, where appropriate
- ≈ Low-flow shower heads
- ≈ Xeriscape landscaping, with a minimum of turf area
- ≈ Automated sub-surface irrigation system which reduces loss due to evaporation
- ≈ Water cisterns to capture water for irrigation
- ≈ Enhanced water treatment for boiler, chiller and condenser loops
- ≈ Sub-metering domestic water system for leak detection
- ≈ Recycling rinse water to washing cycles for dish and clothes washing

REDUCE WATER CONSUMPTION IN & AROUND THE HOME

Water conservation has a place at home as well as in the workplace. By passing on the following tips to staff, Environmental Co-ordinators will help them save water use at home.

- ≈ Inquire about water conservation retrofit kits available from your municipality
- ≈ Repair leaky faucets and toilets
- ≈ Install ultra low-flow aerators, toilet dams, and low-flow shower heads
- ≈ Turn on sink water only when it is required—don't leave it running

- ≈ Run only full loads in laundry or dish-washing machines
- ≈ Incorporate xeriscape landscaping principles, reduce turf areas, decrease use of annuals, increase perennials, and mulch
- ≈ Overseed lawn in spring and fall with drought tolerant grass to encourage thicker turf which requires less water
- ≈ Aerate lawn areas to relieve soil compaction and aid nutrient, water and air penetration
- ≈ Use perforated "soaker" hoses with low pressure water for slower irrigation to allow soil time to absorb water
- ≈ Use drop/trickle irrigation
- ≈ Irrigate slowly and thoroughly, making sure there is no water runoff
- ≈ Best time to water is from 6 a.m. to 10 a.m. It's best to avoid the hottest time of the day. Evenings should be avoided, when wet plants become susceptible to molds and other diseases
- ≈ Avoid watering on windy days
- ≈ Avoid irrigation systems which put water into the air, which wastes water through evaporation
- ≈ Reduce irrigation in spring to encourage plants to develop deeper roots and be better able to endure dry period
- ≈ Direct rainwater runoff onto lawn, not sewer system
- ≈ Collect rainwater in cisterns for plant irrigation
- ≈ Use drought-resistant plants at home or in the office

A helpful hint to track water consumption at home...

To find out how much water is used when you take a shower, insert the drain plug and check the amount of water captured in the bath tub. Chances are, if you don't have a low-flow shower head, more water is used while taking a shower than when having a bath. Showers longer than five minutes waste water.

APPENDIX I

CONTACTS FOR
WATER
CONSERVATION
INFORMATION

REPORT

“A Guide to Water Efficient Practices” prepared in May 1994 is available from Property Support Services Branch, Ontario Realty Corporation.

ONTARIO CLEAN WATER AGENCY

Ken Sharratt (416) 314-3597
(The Ministry of Natural Resources handed over water conservation to the Ontario Clean Water Agency (under MOEE), and no longer has a specific water conservation office.)

ONTARIO REALTY CORPORATION

Bob Leishman, Resource Centre Officer (416) 327-1985
Serge Chukseev, Landscape Architect (416) 327-1840
Ed Scott, Manager, Research Codes and Specs. (416) 327-1873
Peter Pinchis, Mechanical Engineering (416) 327-1865
Brian Opitz, Program Consultant (416) 314-8192
Rob McDowell, Program Manager (GEM) (416) 926-4200

REGULATION OF DRINKING WATER

Bacteriological and chemical quality of municipal tap water is regulated under the Canadian Drinking Water Guidelines and the Ontario Drinking Water Objectives.

Under existing law, suppliers of bottled water are not required to undertake comprehensive chemical testing of their product, nor to disclose to the public the results of such testing if they have them. Bottled water is considered a food and is regulated primarily for bacteria under the Food and Drugs Act.

Neither the chemical nor the bacteriological quality of water generated by home water treatment devices is regulated under federal or provincial guidelines. Instead, water treatment devices are regulated by the federal Department of Consumer and Corporate Affairs to control false or misleading advertising.

STUDY GUIDELINES

Five separate sampling programs were developed to assess tap water, bottled water and water treated by a point-of-use device. The programs were designed to produce a limited but intensive look at the chemical and bacterial quality of these three sources of Toronto drinking water.

CONSIDERATIONS FOR CONSUMERS

BOTTLED WATER

Although the Ontario Bottled Water Association encourages its

members to undertake chemical testing, such

action is strictly voluntary. The potential consumer of bottled water has no evidence that a particular bottled water product meets drinking water guidelines or is superior to tap water.

HOME TREATMENT DEVICES

The field study of these devices showed that most residents were unsure of the life expectancy of their device and its required maintenance schedule. Potential health risks associated with these devices can be reduced by careful attention by consumers to manufacturers' recommendation for maintenance and replacement. Attention to filter changes is essential.

SUMMARY AND CONCLUSIONS

In the view of the Department of Public Health, tap water is currently the best choice for drinking water in terms of health considerations.

The Department does not promote the use of alternatives because of currently inferior bacteriological quality, variable chemical quality, and lack of applicable standards to guarantee the quality of product to the consumer.

The most important conclusion of the study is that tap water is currently the best choice for drinking water in terms of its overall quality.

A detailed copy of this report is available by calling the City of Toronto's Department of Public Health (416) 392-6788.

APPENDIX II

*The following are excerpts from
The Quality of
Drinking Water
in Toronto—*

*A review of:
Tap Water, Bottled
Water and Water
Treated by a Point-
of-Use Device.
Summary Report,
September 1990.
City of Toronto
Department of
Public Health.*

*This study was
initiated by the
Department of
Public Health for
three main reasons:
high public concern
about the quality
of drinking water;
increasing scientific
concern about the
effects of life-long
consumption of
small quantities
of toxic contami-
nants; and the
availability of
increasingly sophis-
ticated analytical
and risk assess-
ment techniques.*



BACKGROUND

By choosing transportation which minimizes gas emissions, we reduce the impact of our travel on the environment.

In July 1992, the Ontario Ministry of Transportation revised its policy to recognize "the bicycle as an integral part of the transportation system; an alternative mode of transportation and not simply a recreation vehicle. When the province plans, builds or upgrades our transportation systems, whether road or transit, the role of the bicycle will be considered".

The same year, recognizing that automobiles and other vehicles are

major contributors to air pollution, the Green Workplace began promoting "green transportation". By this we mean everything from bicycling, public transit and carpooling to video conferencing, teleconferencing, telecommuting and the greening of government fleets. In this section, we're going to concentrate on the first three: bicycling, public transit and carpooling.

Environmental Co-ordinators can make a difference to the environment by supporting these methods of transport and by promoting them to staff.



THE CAR

- Owning a car costs time and money.
- Each year, car owners spend on average over nine weeks commuting and \$7,000 on gas, maintenance, and insurance.
- Canadian governments currently spend over \$11 billion annually supporting the car's needs, while receiving only \$8.7 billion income from registration fees, gas and corporate taxes.
- One-half to two-thirds of city land is devoted to roads and parking lots.
- In North America, automobile exhaust is a major contributor to acid rain and "greenhouse gases".

THE BICYCLE

- There are more than two million cyclists in Ontario.
- Six per cent of Ontarians over the age of 15 (460,000) use bicycles for primary transportation.
- Between 1991 and 1992, the num-

ber of Bicycle User Groups (BUGs) in the Greater Toronto

Area grew from 30 to over 200.

BICYCLING INSTEAD OF USING A CAR

BENEFITS OF CYCLING

- Regular exercise gives people more vigour, increased resistance to disease and additional energy.
- Cycling is an excellent exercise, because it is an endurance activity that builds up the heart muscles and the capacity of the lungs and blood vessels.
- *Fewer expenses for parking* – The cost of providing space for one car ranges up to 10 times that of one bicycle locker and 100 times that of a bicycle hitching post.
- *Protecting the environment* – Travelling by bike contributes to cleaner air and a quieter, more relaxed environment. It reduces energy consumption and traffic congestion.

How staff at 77 Bloor Street West 'BUGGED' people for a bicycle lockup facility!

This 'success story' is an example of what can happen when staff, property management and the landlord work together on a program.

In May 1993, employees of the Ministry of Culture, Tourism and Recreation (CTR), at 77 Bloor Street West, approached the MBS property manager. These employees, members of the building's BUG (Bicycle User Group) wanted secure facilities for their bicycles when they cycled to work. The MBS property manager approached the landlord, Cadillac Fairview, for space for the bicycle lockup.

Cadillac Fairview agreed to donate free space indoors for up to 50 bicycles at 77 Bloor Street West. Labour costs incurred on renovations to the space were divided 50-50 between the Green Workplace (as funding of Green Transportation initiatives) and Cadillac Fairview.

STARTING A BICYCLE COMMUTING PROGRAM

Many organizations and companies are encouraging bicycle use. If an Environmental Co-ordinator is approached by staff to start up a bicycle program in the ministry, the following guidelines can be used.

STARTING OUT

- ☐ Check out existing bike facilities in area.
- ☐ Survey the building and see what the level of interest is in setting up a program, and what issues and concerns exist about biking to work.
- ☐ If the survey is positive, then think about setting up a BUG (Bicycle Users' Group).

NEXT STEPS

- ☐ Discuss ideas with own section manager.
- ☐ Consult with Facility Manager or Landlord.
- ☐ If funding is necessary for lockup facilities, etc. check out the following possibilities:
 - can various ministries share the cost of facilities
 - can the landlord and/or MBS facility management share the costs
- ☐ Let staff know plans about setting up the program.

MINIMIZE OBSTACLES TO BICYCLE COMMUTING

Even if other staff are supportive of a bike-to-work program, when it comes to participating, they are often hesitant because of real or perceived drawbacks and barriers.

As secure parking and storage for equipment is top-of-mind for all cyclists, here are some notes for security:

- ☐ Bicycle cages with locking mechanisms can be purchased.
- ☐ Bicycle lockers or individual high quality bicycle racks should be placed in highly-visible areas.
- ☐ Storage rooms may be available for lockup on site at work.

PROMOTING A BICYCLE COMMUTING PROGRAM


A successful bicycle commuting program needs to be promoted regularly by the Environmental Co-ordinator. Encouragement to join the program can be provided in the following ways.


- ☐ Network with nearby offices to organize a bicycle user group (BUG).
- ☐ Provide route and safety information to employees.
- ☐ Hold bike-to-work related workshops.
- ☐ Reserve bulletin board and newsletter space for bicycle-related issues and information.
- ☐ Recognize staff who support and organize BUGs.

FACTS ABOUT BICYCLES

Here are some facts supplied by the Queen's Park Bicycle User Group (BUG).

 Bicycles are legal vehicles under the Highway Traffic Act (HTA).

 Studies indicate that bicycle helmets can reduce cycle related fatalities by 75 per cent and head injuries by 85 per cent.

 By not driving automobiles, Ontario cyclists reduce pollutants per year by an estimated 80,000 tonnes.

PUBLIC TRANSIT

Public transit can move large numbers of people around efficiently. It's economical to use. It consumes a lot less energy and contributes less to air pollution than vehicles with a few occupants. Some people drive to the subway or the GO station and take transit from there. But public transit is not available everywhere, and that's where carpooling comes in.

CARPOOLING

Carpooling is another way for commuters to reduce their impact on the environment and dramatically cut travel costs.

Besides the advantages to the environment, carpoolers can save on fuel, vehicle operating costs and parking. Ministry of Transportation (MTO) figures show that for someone travelling 60 km round trip each day, a compact car costs around \$20.70 each week and a full-size vehicle \$28.95 when gas is 55 cents per litre. These figures include maintenance, but not parking.

The Ontario government's "Share-A-Ride" program is an easy way to get information on potential carpooling partners. People looking for carpool partners call 1-800-56-Share (1-800-567-4273) on a touch tone phone, from anywhere in the province.

Carpoolers are matched using home and work postal codes and travel patterns. If a match is available, the system supplies this infor-

mation, within seconds, at the end of the phone call.

PUBLIC TRANSIT AND CARPOOLING

With the establishment of 'high occupancy lanes' on many city streets, carpooling is expected to become more popular.

In Toronto, the GO Transit commuter system has set aside spaces for carpoolers in its parking lots. There are plans for the Toronto Transit Commission (TTC) to designate parking spaces for carpoolers at its subway station parking lots.

TIPS FOR CARPOOLERS

Meet your fellow carpoolers

- Get to know fellow carpoolers by arranging a meeting before sharing rides. Be sure everyone is comfortable with each other.
- Decide if driving duties will be shared or if costs will be shared.

Insurance premiums

- Before driving in a carpool, check insurance coverage.

Establish the driving duties

- Decide from the beginning who is to drive and when. One person may do all the driving. Other groups may rotate driving duties daily, weekly or monthly. Whichever arrangement is chosen, make sure everyone knows what to expect.

Agree on a regular route and timetable

- Each carpooler should know when to expect the car to arrive.



Share-A-Ride
1-800-56-SHARE

- The number of stops may be reduced by choosing pick-up points convenient for more than one passenger.
- Establish a time and meeting place for the trip home.

Be punctual

- Being on time is important. Everyone will appreciate it.
- Decide how long the driver should wait for someone before leaving.

Do not make side trips

- Stopping to do errands inconveniences riders—even if it is only to buy gas.

Be organized

- Decide beforehand whom to call if arrangements have to be changed.
- Designate a reserve driver in case a back-up is needed.

Agree on financial arrangements

- Decide on cost-sharing arrangements.

- Some pools decide on payment based on distance travelled.
- Other pools relate payment to public transit fares or parking costs.

Keep car in good repair

- If a carpool driver, make sure car is clean, safe and in good running condition.

Be considerate of pooling partners

- Have an agreement with fellow poolers regarding preferences for smoking or non-smoking, use of radio, sleeping and punctuality.
- Consideration for others is the key to success.
- Resolve problems as soon as they arise.

Co-operative effort

- Common sense, dependability, courtesy and planning are important for a successful carpool.

SOURCES OF INFORMATION FOR SAFETY, BIKE COURSES, ALTERNATIVE TRANSPORTATION OPTIONS

Toronto City Cycling Committee, Sue Zelinski	(416) 392-1556
Toronto Healthy City Office, Lisa Salzberg	(416) 392-1086
Transportation Options, Wil Wallace	(416) 466-1625
Ministry of Transportation, David Hunt	(416) 235-4174
Canadian Cycling Association, Charles Laframboise	(613) 748-5629
B.C. Systems Green Transportation, Susie Ross	(604) 389-3053
Ontario Cycling Association	(416) 495-4141
Canadian Standards Association (CSA)	(416) 747-4000
Bike Helmet Coalition	(416) 813-7602
GO Train Bicycle User Group	(416) 960-5495
Noranda 'Bikes at Work' group, Thomas Schnull	(416) 982-7065



7 ENVIRONMENTAL BUYING

Although Purchasing Officers handle purchasing matters in most ministries, Environmental Co-ordinators can influence purchasing habits by educating the ministry about buying “green”.

By buying “green”, the government’s purchasing power can help create demand for new products. And with increased demand for environmentally-sound products, prices may fall and more people may buy them.

It is helpful to be aware of the government’s environmental purchasing policy and guidelines.

BUYING WITH THE ENVIRONMENT IN MIND – ONTARIO GOVERNMENT POLICY

Federal Environmental Choice Program (ECP or EcoLogo) standards are mandatory standards for the acquisition of goods and services in the OPS.

This means that for products or services to which the ECP standards have been applied, the OPS will select from those which have the ECP designation. Deputy exemption is required to buy a product which does not have the designation.

Product categories currently covered under this program include construction material, plastic goods, batteries and paint, lamps and appliances.

Tenders for goods or services in excess of \$10,000 must contain environmental specifications or considerations.

An environmental analysis must be part of bid evaluation.

ENVIRONMENTAL CLAUSE

The following clause has been approved for inclusion in all government tenders and requests for proposal.

“Suppliers Environmental Practices – The government intends that appropriate environmental protection practices be supported within the private sector. We therefore encourage you to take an active role in implementing environmentally sound business practices and producing goods and services that lessen the burden on the environment in their production, use and final disposition.”



BACKGROUND

Buying “green” supports the government’s commitment to environmental protection and helps develop “green” industries.

Consolidated Environmental Buying – Some Examples

- ◆ MBS buys fine paper and fine paper products for OPS ministries. All fine paper purchased is required to have at least 50 per cent recycled content, with a minimum of 10 per cent post-consumer waste.
- ◆ MTO buys lubricating products for the government specifying re-refined oil.
- ◆ In selecting photocopiers for the OPS, the MBS tender reviewed the environmental stewardship of the vendor. In addition it required vendors to provide information about energy consumption, double-sided copying efficiency and functionality using recycled paper. Manufacturers were encouraged to incorporate recycled components as the tender did not identify a preference for new equipment. No distinction was made between the functionality of new and re-manufactured machines.

BUY GREEN CHECKLIST

The following checklist is found in the "Government of Ontario Environmental Procurement Policy and Operational Guidelines" produced by Procurement Leadership, Interministerial Steering Committee in September 1992.

GENERAL ENVIRONMENTAL CRITERIA FOR ALL PRODUCTS

- Is the product size/magnitude necessary?
- Are all the features of the product necessary? Can any features be eliminated, especially the environmentally harmful ones? (e.g. cosmetic plastic coatings on paper products)?
- Is there a suitable alternative which is less harmful to the environment and safe to use?
- Is the product designed to be durable/long lasting?
- Are recycled materials used in producing the product?
- Does the product contain any banned or restricted substances (e.g. CFCs)?
- Does the product contain any exotic/endangered material?
- Is the product reconditionable or recyclable following use?
- Does the product require special disposal considerations (e.g. hazardous materials)?

ENVIRONMENTAL CONSIDERATIONS FOR DURABLE PRODUCTS

- Is the product energy efficient?
- Are components of required maintenance environmentally damaging?
- Is the product designed for easy maintenance and repair?

- Are recycled materials used in producing replacement parts?
- Are replacement parts reconditionable or recyclable (e.g. laser printer cartridges)?

ENVIRONMENTAL CONSIDERATIONS FOR CONSUMABLE SUPPLIES

- Are supplies designed to reduce consumption, e.g. rechargeable batteries?
- Are the supplies designed to minimize waste (e.g. carbonless multi-part forms)?
- Are the supplies required by the equipment non-toxic and/or, do they require special disposal?
- Are recycled materials used in producing the supplies?
- Are the supplies reusable?
- Can the supplies be recycled or composted after use?

ENVIRONMENTAL CRITERIA FOR PACKAGING

- Is the packaging designed to be minimal?
- Is the product packaged in bulk (if functional)?
- If the packaging is reusable, specifically, will the supplier take it back for reuse or will the end user reuse it?
- Are recycled materials used to produce the packaging?
- Is the packaging recyclable?

GUIDELINES FOR PREPARING ENVIRONMENTAL SPECIFICATIONS

When developing purchase specifications, please:

- Specify products that meet or exceed requirements of the Environmental Choice Program (ECP) guidelines, where available, or
- Specify other standards/guidelines issued by accredited standards-writing organizations where the ECP guidelines are not available, or
- Write your own specifications to suit your procurement needs when such specifications are not available from other sources, and
- Specify that all services be carried out in an environmentally sensitive manner to minimize the pollution created during the use of the equipment and supplies and the amount of waste generated during the process.

SOURCES OF FURTHER INFORMATION ON ENVIRONMENTAL PURCHASING

Guidelines, additions to mailing lists, vendor lists, etc. are available from:

Environmental Choice Program (EcoLogo)
107 Sparks Street, Suite 200
Ottawa, Ontario K1A 0H3
Telephone: (613) 952-9440
Fax: (613) 952-9465

Copies of various guidelines including "Environmentally responsible Procurement", Z766-94; "Environmental Labelling", Z761-94; "Life Cycle Assessment", Z760-94, are available from:

Canadian Standards Association
178 Rexdale Blvd.
Rexdale, Ontario M9W 1R3
Telephone: (416) 747-2697
Fax: (416) 747-2473

Copies of the "G.i.p.p.e.r. (Governments Incorporating Procurement Policies to Eliminate Refuse) Guide", is produced by an association of Canadian municipal and provincial purchasing executives. It lists vendors and their products and services that feature environmental characteristics and it's available from:

City of Toronto
Purchasing Department
19th floor, West Tower, City Hall
100 Queen Street West
Toronto, Ontario M5H 2N2
Telephone: (416) 392-7313
Fax: (416) 392-1052

For specific questions regarding the environmental purchasing policies of the government of Ontario, please contact

The Commodity Manager
Management Board Secretariat
Collective Purchasing Group
6th floor, Ferguson Block
77 Wellesley St. West
Toronto, Ontario M7A 1N3
Telephone: (416) 327-3593
Fax: (416) 327-3573



8 COMPOSTING

As of summer 1994, composting operations were diverting 1,500 tonnes of food waste from landfill and saving \$150,000 in tipping fees each year. Ministries involved in this are: Agriculture, Food and Rural Affairs; Solicitor General and Correctional Services; Community and Social Services; Health; Natural Resources.

On-site composting in residential and institutional government facilities has been a part of the Green Workplace waste-reduction strategy since 1991, when waste audits showed that food and wet waste

constituted up to 70 per cent of the waste stream in residential facilities.

Ten demonstration projects in composting have been implemented since 1991 and their results are documented in a Green Workplace report entitled "Composting In Ontario Government Facilities". Since the demonstrations have shown that composting is a viable way to 'recycle' organic waste, composting has been expanded to 28 government facilities with additional projects underway.



BACKGROUND

Composting is an environmentally-sound way of turning organic food waste into a nutrient-rich soil conditioner.



GREEN WORKPLACE DEMONSTRATION PROJECTS

These composting methods were used in the demonstration projects:

- Windrow
- Windrow with manure
- Aerated static pile
- In-vessel (continuous flow and batch)
- Large scale vermiculture

WINDROW

A windrow is usually a pile of compostible material laid out, on the ground or on a gravel bed, in a row seven to 10 feet wide, four feet high.

Windrow composting requires minimal site preparation and is easily expanded to take more materials.

This system is labour intensive and, while it may cost the least to set up, there are on-going labour costs. Additional costs come from enclosing the composting area to keep out animals, especially if meat is being composted. This method may require a greater level of monitoring than the other methods.

Example—Windrow

Demonstration site: LESLIE M. FROST NATURAL RESOURCES CENTRE

The facility started composting in June 1992. The location was chosen particularly to demonstrate relatively small-scale institutional composting in central Ontario, where winter snow cover is considerable, and wild animals pose a potential nuisance problem.

Operations

Plate scrapings and food preparation waste is placed in buckets and collected from the kitchen twice a week. The amount of waste varies according to number of people using the centre and the time of year.

Neither large bones nor liquid dairy products are composted. To reduce the moisture content, waste is put through a strainer, and peat moss, yard waste and sawdust are added as bulking agents and amendment.

A tractor with a loader takes the compostible kitchen waste to the composting site. The top of the windrow is exposed and the containers with the waste are tipped onto the open pile. The exposed food waste is covered over with fresh amendment or compost. The amendment is added at a ratio of two parts amendment to one part food waste. Each time food waste is added to the windrow, the windrow is turned two to three times.

Before new material is added, the temperature and pH level of the windrow are recorded. These measurements are used for comparison purposes. During the first two weeks of composting, the temperatures should be above 55°C. Once the windrow's temperature drops to no more than 10°C above the surrounding air temperature, no additional turning is required.

The composting site is located within easy walking distance of the campus, which also allows its use as an integral part of the Centre's environmental educational program. An enclosure of 7.2 metres x 10.8 metres was built to prevent waste from blowing around and to keep animals (especially bears) out. Barn type access gates, covered in chain link fencing, were installed. A roof was built over the site to control the amount of moisture on the pile. To avoid problems with leachate, a catch basin was built and the floor was sloped away from the leachate catch basins.

Results

The compost was tested and complied with MOEE guidelines.

Contact: Alfred Trotter, Leslie M. Frost Centre (705) 766-2451

WINDROW WITH MANURE

These systems are ideal in a rural setting where there is plenty of land and large volumes of compostible waste, including manure.

Traditionally the windrow method has been an open pile located in a field or in an area with a gravel base. Food waste is mixed with manure or with amendment such as wood chips, leaves, twigs, etc. or mature compost.

The pile must be mixed well so oxygen can get in, be kept loose and turned frequently (at least once per week) to maintain oxygen supply. If left unturned, the pile will become anaerobic resulting in an unpleasant smell. The temperature must be monitored regularly to ensure pathogen kill. A front-end loader or windrow turner is useful for turning the mixture.

Example—Windrow with manure

Demonstration site: GUELPH CORRECTIONAL CENTRE

Composting was started in June 1991 using an open-air windrow system.

Operation

More than 80 per cent of the facility's waste comes from the kitchen. Of that 35 per cent still goes to landfill because of contamination through sorting. The compostible food waste consists of plate scrapings and food preparation waste. Some paper products are also composted.

The waste goes through a Hobart system which grinds and dewateres the food, turning it into a pulp. This pulp is placed in containers yielding a weekly average of 2,760 kg.

Three times a week, a side discharging manure spreader with a power take-off-driven chain flail, is used to collect food waste from the loading dock adjacent to the kitchen. Early fears that the sloppy mixture in the spreader would freeze were unfounded since the chain flail works best if the mixture is partially frozen. Manure, three to six months old, is loaded on top of the food waste in the spreader, usually at a ratio of four to five parts manure to one part food waste. The unmixed load is taken to the composting pad and unloaded so the wet waste is on the bottom and the material left on the surface of the pile is mainly manure.

Results

Temperatures were in the 30 to 40°C range when taken by digging through the top of the pile to a depth of more than one metre. Measurements showed the oxygen level at seven per cent and the moisture content at 38 per cent which indicated that the pile at that depth was relatively dry, aerobic and a well-rotted manure product.

The perimeter of the mass was measured where the material was about 30 days old. Temperatures there were in the 45 to 55°C range. No oxygen reading was obtained and there was a 49 per cent moisture content. This indicated the material was composting at a fairly high but inconsistent rate.

After 90 days of operation, the accumulated pile was about 100m³. In the spring the compost is used on the facility's fields.

Contact: Nelson Burkhart, Guelph Correctional Centre (519) 822-0020

AERATED STATIC PILE

This system is like a windrow but has a blower fan and an air distribution system down the centre of each windrow to force air into the pile. The windrow, therefore, doesn't have to be turned on a regular basis to ensure adequate oxygen levels. This system is also suitable for a rural setting where there are large volumes of compostible waste.

To promote a uniform rate of composting in the pile, the compostible waste should be well mixed with the amendment before being

placed in the windrows. While the pile remains static throughout the composting period (i.e. there is no turning involved), some monitoring of the moisture content, oxygen and temperature is required. Up-front site preparation and equipment costs are higher, but on-going costs are lower as this system is less labour intensive.

However, the composting area should be enclosed to keep a constant moisture content and provide for better control of moisture and temperature.

Example—Aerated static pile

Demonstration site: ST. THOMAS PSYCHIATRIC HOSPITAL

Composting operations commenced in July 1992 in a covered wood frame building 24 metres x 12 metres with open sides. The site is covered for better moisture control.

Operations

Waste at this facility comes from the kitchen and yard. The food waste consists of fruit and vegetable peelings, excess cooked food and salad bar waste. The food waste is collected in 90.8 litre plastic pails on rollers. Meat, dairy products, soups and gravies are disposed of in the regular waste or garburators. Organic wastes are collected and blended with the required amendments in a mobile agricultural feed mixer. Sawdust is used as the bulking agent and reduces the moisture content from 90 per cent to 60 per cent. A mixture of topsoil and peat moss is also added to create an earthy consistency. As the sawdust is high in carbon, urea is added to balance the carbon-to-nitrogen ratio. For every 450 kg of food waste, 180 kg of sawdust, 112.5 kg of topsoil and 2.7 kg of urea are added. Once blended, the mixture is put into a windrow at the composting site. The material is not handled again until the composting process is completed in approximately 60 days. The site is close to existing storage buildings which provide the necessary water and electricity to operate the watering and aeration systems. Aeration tubing is buried in the gravel along the base of each windrow and a blower fan is located at the front of each windrow with a manifold to evenly distribute the air to the aeration tubing. A fine sprayer tip is located inside the manifold and can be used to distribute moisture into air being fed to the piles. All moisture-sampling and temperature-control equipment is located in a shed adjacent to the compost building for easy access when needed.

Results

Approximately 50 per cent of the finished compost will go back into the system as amendment and top dressing. The remaining compost will be used to top dress turf areas and in the hospital gardens. As of December 1992 all tests were in compliance with MOEE guidelines. St. Thomas found that the composting process was complete when the temperature dropped to 40°C. The process took 50 to 70 days. Sites utilizing this method will find that the first few sections of the windrow will take a few days longer to reach the desired temperature. Once these sections are up to temperature, those following will tend to take one or two days to reach 50°C.

Contact: Mike Madigan, St. Thomas Psychiatric Hospital (519) 631-8510

IN-VESSEL (BATCH)

The in-vessel machine is designed to enclose the compost to reduce odours. It also provides the compost mass with proper carbon, nitrogen, oxygen and moisture levels. It should be designed to ensure that the proper temperatures (55–60°C) are reached to meet MOEE guidelines for pathogen kill.

This system is suitable for urban settings, areas that have restricted

land area or where there are concerns about odour. This is a good option for facilities that must minimize labour costs. The batch in-vessel will handle no more than 45 kg/day of food waste including meat, poultry, dairy and fish, as well as peat moss as an amendment. The compostible waste is added to the machine daily, which is programmed to mix and aerate the waste.

Example—In Vessel (batch)

Demonstration site: AYLMER POLICE COLLEGE

The college commenced composting in July 1994.

A 45 kg per day in-vessel, built by Eco Corporation, (now operating as Industrial Composters Inc.) is self-contained and has automated mixing.

Operation

The machine works on a batch system with a capacity of 675 kg per side. The first side is filled for 15 days and closed; then, the second side is filled for 15 days. Once filling is completed on the second side, the first side is discharged and the process is repeated. The machine can take 45 kg of food waste per day. While the loading rate may vary, the total start to finish time per side must be 30 days.

All types of food waste are accepted except excess grease from frying or grease traps, large meat bones and free liquids such as soup, juice, milk, coffee, tea, water and all non-food items.

Peat moss or mature dry compost is used as a bulking agent to obtain a mixed food waste moisture level of between 50 per cent and 55 per cent for optimum composting activity. Mature dry compost is the preferred agent as it is high in micro-organisms which speed up the process. Approximately 108 kg of commercial peat moss should be used or 54 kg of peat moss with 54 kg of mature compost.

Contact: Chris Raynard, Aylmer Police College (519) 773-4204

IN-VESSEL (CONTINUOUS FLOW)

This system is suitable for urban settings, areas that have restricted land area or where there are concerns of odour. This system is also suitable for large scale municipal composting, as the unit can expand from 45 kgs/day up to several hundred tonnes daily.

The machine can handle all types of food waste including meats, dairy products, poultry and fish. A ram moves the food waste through a series of air zones. Temperatures and moisture levels are maintained constantly and airflow is computer adjusted to ensure optimum composting conditions.

Example – In-Vessel (continuous flow)

Demonstration site: ONTARIO SCIENCE CENTRE

Composting commenced June 9, 1993.

Operations

Food waste and amendment is added to the mixer in appropriate proportions using a bucket lift. A variety of food waste is mixed—vegetable preparation waste, plate scrapings, dairy products, fish, meat and bones. Amendments which have been used in the testing process are wood chips, paper towels, fine paper, blue-prints and rubber tires. A moisture content of between 55 to 65 per cent is achieved by varying the amount of amendment. (A fully detailed description of the vessel and its bio-filter are found in the Green Workplace's brochure "Composting hits paydirt").

Results

Approximately two tonnes of food waste is diverted to the composting system on each of the three designated days each week. The machine has a capacity of handling an additional tonne on these days based on the 28-day process. The total amount of food waste composted over a month can also be doubled if the machine operation is changed to a 14-day process. Finished compost for a 28-day process is windrowed for three to four weeks and six to eight weeks for the 14-day process.

**Contact: Nancy Anthony, Facility Manager,
Ontario Science Centre (416) 314-9525**

LARGE SCALE VERMICULTURE

Vermiculture is the use of worms which eat organic waste and turn it into a soil conditioner. The best kind of earth worm to use is the red worm (a.k.a. "red wiggler"). These worms are incredible garbage eaters. Every day they eat their own weight in food waste and then produce castings.

Every six months or so, a machine separates the worms from the castings excreted by them. The castings, when mixed with house or garden plant soils, becomes a natural soil conditioner by gradually releasing nutrients to the plants.

Example – Large Vermiculture

Demonstration site: BROCKVILLE PSYCHIATRIC HOSPITAL

Vermiculture started December 1993.

Operation

Two 91 kg-per-day vermiculture units were installed in Brockville Psychiatric Hospital by Original Vermitech Systems of Toronto. The units are each 1.8 metres wide by 13.4 metres long—about the size of a bowling alley—with panels of anodized aluminum and Styrofoam sandwiched in between, creating an insulation factor of R21. To ensure that the units would remain operational in sub-zero temperatures, heating elements were installed in the inside walls of the units. This is the largest cold-weather vermiculture of its kind in North America.

Approximately 800,000 (273 kg) red wiggler worms are housed inside the two units. Food waste and kitchen scraps are ground into smaller pieces by a shredder in the kitchen, and fed to the worms.

The system has proven very successful even with the severe winter temperatures dropping down to minus 40°C. Using this system means kitchen and food waste is no longer hauled off-site which saves the facility money in hauling and tipping fees.

Results

The vermiculture unit handles 182 kg of kitchen waste and food scraps each day. At full capacity, it will use 454 kg of worms, 227 kg in each section, and take in 182 to 227 kg of food a day.

Not only is food waste diverted from landfill, and tipping fees avoided, the facility's grounds benefit from the nutrient-rich soil conditioner. Brockville Psychiatric Hospital has offered land to the local community to use as gardens. Now, these community gardens will also reap the benefits of this soil conditioner.

As the food waste is generated on-site, used on-site for vermiculture and won't be used off-site, no MOEE Certificate of Approval is needed.

Contact: Jack Hewitt, Brockville Psychiatric Hospital, (613) 345-1461

SETTING UP ON-SITE COMPOSTING

The following gives an insight into what on-site composting is and what conditions are necessary for it to work effectively in an institutional facility. These elements should be considered by the Environmental Coordinator and/or Facility Manager and Superintendent when a facility is considering composting.

The provincial government program dealt with here is equally applicable to operations of other levels of government, community initiatives, and industrial, commercial and institutional (IC&I) situations.

WHY ON-SITE COMPOSTING

In 1994, the Green Workplace completed a survey of the 62 government institutions not currently composting to determine the savings that would be generated by putting composting into place at these sites. It was learned that the set-up costs would be repaid in as little as six months at some locations. Payback periods range from six months to six years for the 62 sites. (See Appendix IV). Savings are even higher if one takes into consideration the costs avoided by using the finished compost instead of buying soil, peat moss, mulch and fertilizer to maintain the lawns and gardens.

On-site composting also reduces the number of trucks required to haul waste each day. This ultimately reduces congestion on the road, emissions into the air and the high maintenance costs on vehicles, particularly for those institutions that haul their own waste and recyclables. Composting also provides the facility with more control and a better sense of responsibility over handling its own waste.

If government residential facilities are located in an urban or quasi-urban area, on-site composting may be an interim measure until the development of large-scale municipal or privately-operated composting facilities.

HOW COMPOSTING WORKS

Proper composting creates the right conditions to accelerate the nat-

ural process of decomposition either aerobically (with oxygen) or anaerobically (without oxygen). (The Green Workplace chose aerobic composting for government of Ontario facilities.)

- An ideal composting operation should not have offensive odours, attract rodents or other vermin.
- The composting process is quickened by placing the compostible waste in a specific configuration such as a windrow pile.
- Adequate temperatures (up to 55°C) must be maintained for a specific time to ensure pathogens are killed.
- Under ideal conditions, the composting process can take 30 to 60 days. If a quicker process is used, the semi-ripe compost may require additional curing time.
- The correct carbon to nitrogen ratio in the feed material is essential to create the ideal environment for composting to occur.
- Food waste must be free of contaminants such as heavy metals and non-compostible materials, i.e. plastics, glass, metals and rubber. The size of food particles and moisture content needs to be relatively stable.
- Amendment material (such as wood chips, sawdust, peat moss, cardboard or paper towel) is usually added to achieve the proper moisture level and carbon content. It also makes the food material porous enough to allow oxygen to pass through the mass.
- The most important factor in a successful composting system is proper separation at the front end. Failure at this point can contaminate the compost.

- A good monitoring system should be set up in the kitchen to ensure liquid content of food is kept at a minimum.
- All composting operations need some attention by staff, though the amount of time varies from operation to operation.

METHODS OF COMPOSTING TO CONSIDER	50 KG/DAY	100 KG/DAY	MORE THAN 100 KG/DAY
Rural Farm Operation	Windrow with Manure Medium-Sized Vermiculture	Windrow Medium-Sized Vermiculture	Windrow Large Vermiculture
Urban – More Than 100 Acres, Available Labour	Small In-Vessel Medium-Sized Vermiculture	Aerated Static Pile Medium-Sized Vermiculture	Aerated Static Pile Large Vermiculture
Urban – Less Than 100 Acres	Small In-Vessel	Large In-Vessel	Large In-Vessel or Central Composting

CHOOSING THE RIGHT COMPOSTING METHOD

The Composting Co-ordinator (who may be the Environmental Co-ordinator, Facility Manager, Facility Superintendent, Groundskeeper or Housekeeper—depending on who initiates the project) chooses the composting method for the facility based on these considerations:

- ☐ geographic location
- ☐ cost
- ☐ climate
- ☐ soil condition
- ☐ source and amount of amendment available
- ☐ volume of material available for composting
- ☐ security
- ☐ staffing
- ☐ animal nuisance
- ☐ surrounding land use

THE FIRST STEPS

If a facility is interested in starting composting, a survey can be filled out

to see if composting is economically feasible (see sample in Appendix 1).

The information required for this decision would include:

- a review of organic waste (type, quantities and method of disposal);
- existing waste management costs (containers, hauling and tipping fees);
- recycling costs (recyclable items, containers and pickup charges).

THE NEXT STEPS

If the information shows the economic feasibility of on-site composting at the facility, the next steps for the Composting Co-ordinator are to:

- Network with other facilities that have on-site composting to avoid 're-inventing the wheel'.
- Work with the facility to identify possible reduction/reuse initiatives.
- Choose the best method of composting based on information supplied and demographics.

- Identify space, staff and equipment requirements.
- Discuss funding options, eg. lease to own, with supplier.
- Ensure that the cost of the method identified has at least a five year payback or less (see Appendix IV) and that the facility can reduce their waste management costs up front.
- Train all staff in source separation of food waste in the kitchen and in the composting operation (see Roles and Responsibilities next page).
- Provide follow-up to ensure the operation is successful and that the facility has in fact reduced waste management costs.
- Assess success of composting program.
 - ☐ keep records of food waste being diverted to the composting operation
 - ☐ arrange analysis of finished compost
 - ☐ record utilization of finished compost e.g. on lawns and gardens and the resulting cost reduction in fertilizer
 - ☐ do overall review of costs after three months of implementation—savings on waste removal, fertilizer, and any others.
 - ☐ survey employee (kitchen staff, office staff, etc.) reaction to composting operation
 - ☐ arrange follow-up audits
- Enlist help of ministry newsletter to spread the good word.
- Ensure that the facilities are diverting all waste, that the method is cost-effective and that alternative methods have been identified in case of problems with current composting arrangements.
- Encourage leaf/yard composting to continue.
- Possibly link the facility with a municipal leaf/yard waste operation.
- Ensure that, if food waste is going to a hog farmer, he/she is licensed by the MOEE and Agriculture Canada. This ensures that the food waste is in fact being used for animal feed. If the hog farmer is not licensed, alternative methods to handle the food waste should be looked at.

When a facility takes food waste off-site to be composted elsewhere, the Composting Co-ordinator must:

- Contact the local MOEE Office to obtain approval to link up government facilities wishing to share composting operations.
- Clarify approvals for sharing composting units.
- Clarify transportation approvals for transporting waste from one government facility to another.

Although composting is traditionally associated with residential and institutional facilities and cafeterias, buildings without cafeterias where staff bring in lunch generate food waste too. The Composting Co-ordinator can work with the Facility Manager to study ways to divert this food waste.

If dealing with small facilities that are diverting organic waste through backyard composting and/or sending waste to a hog farmer, the Composting Co-ordinator should:

HOUSEKEEPING/JANITORIAL

Housekeeping/Janitorial staff are responsible for the handling and separation of the waste into its components for recycling, composting or landfill. When composting, housekeeping staff will need to work closely with food services to ensure that food waste is separated from non-compostibles such as plastics. As well, items such as cardboard, paper towels, egg flats and other paper products from the kitchen can be separated for use as composting amendment or bedding for vermiculture.

Where Housekeeping/Janitorial is responsible for on-site composting, it is important for waste and recycling contracts to be reviewed. As the wastes which were once landfilled are now being diverted to a composting operation, the number of garbage bins and pickups can be reduced. Housekeeping can work with the haulers to renegotiate a schedule that is suitable for their requirements. (See Appendix V).

FOOD SERVICE

When composting, the role of the food services staff is to separate food waste in the preparation area and recover plate scrapings from cafeterias and food waste from wards and ranges in client-run facilities e.g. hospitals, correctional facilities.

Some food waste is very wet. Therefore a drainage system in the kitchen may be required. (See Food Collection Containers for more infor-

mation). If food waste is not sent for composting daily, it should be put in sealed containers and be kept in cold storage. This eliminates a chance of spillage, odour or leaking of the food waste.

GROUNDKEEPING/ LANDSCAPING/CONTRACTOR

If woodchips are required for the operation, the grounds staff may be responsible for obtaining and storing them. Chips may be available at no cost from an on-site woodshop, or the local Works or Hydro department in the area.

Groundskeeping staff who maintain the lawns and gardens at the facility may be responsible for collecting the finished compost and providing leaf and yard waste for use as an amendment in the composting operation.

Once the compost has stabilized, grounds staff can use it for lawns or gardens. In some instances, the finished compost can replace fertilizers and peat moss previously purchased. However, it is recommended that the compost be tested prior to use on the grounds. (See Appendix II).

It is important that key players monitor all aspects of the composting operation and exchange information.

ROLES AND RESPONSIBILITIES

When starting an on-site composting program, it is important to involve all key players associated with the project. As previously stated, in residential/institutional type facilities, typically these players are the housekeeping/janitorial, food services and groundskeeping staff. The responsibility for the machine or process may belong to one or a combination of these areas. But it is important to have one person—the Composting Coordinator—drive the entire project to ensure smooth implementation and operation.

FOOD COLLECTION CONTAINERS

Depending on the type of composting operation on site and the equipment being used, a variety of containers can be used. Small containers are recommended because they are easy to lift and wash. Large containers may be needed if you are transporting or draining food waste. The following containers were used in the Green Workplace demonstration projects.

COLLECTION CARTS

32 and 64 U.S. gal.* collection carts with drains in the bottom were used for draining liquids prior to loading for composting. The carts need wheels so that they can easily be moved. The carts are not recommended for manual lifting, but have been used on hydraulic lifts on mixers and trucks.

RUBBERIZED PLASTIC COLLECTION CONTAINERS

These containers were used at a couple of Psychiatric Hospitals for food collection in the kitchen. These are ideal as they do not weigh more than 20 kg when full and they are great for stacking in cold storage because of their durable lids.

RUBBERIZED PLASTIC CONTAINERS FOR DRAINING

A set of containers were used in the kitchen to drain the food waste. A 20 U.S. gal. container nests inside a 32 gal. container and allows enough space in the bottom for the liquids to drain. The 20 gal. container requires 1/2" holes drilled halfway up the container. It then lets the liquid out, but does not allow the food waste to fall through the holes. Once the food has drained, the container can be easily dumped into a cart or other container as previously described.

* The U.S. measure (gallons) is used here, since this is the common terminology of suppliers.

APPENDIX I

Organic Waste

Audit – Page 1

SOURCE AND DESCRIPTION	PERIOD OF GENERATION (year-round or seasonal)	GENERATION RATE PER WEEK (kilograms)	PRESENT DISPOSAL METHOD (landfill/animal feed/compost/garburator/land application/mulching, etc.)
Mixed Food			
Grease			
Leaves			
Grass			
Other Yard Waste			
Food Processing			
Garden Waste			
Lab Waste			
Animal Waste			
Other (specify)			
Cardboard			
Pop Cans			

List separate types of food if different disposal methods are used, i.e. liquid leftovers/vegetable peelings, etc.

Meals served per day (not including snacks) = _____

What heavy equipment is already used on site? (circle answers)

front-end loaders

tractors

wood chippers

others

Acres workable: _____ Acres landscaped: _____ Acres bush: _____

What ideas or preferences does the facility have regarding the management of their organic wastes?

Completed by: _____

Date: _____

APPENDIX I

Organic Waste

Audit – Page 2

RECYCLABLES

1) How often are recyclables picked up?

Weekly (# of times) _____ Monthly (# of times) _____

2) Describe costs associated with your recyclables.

Container rentals? Yes ☐ No ☐ Cost \$ _____

How many containers/size? _____

Pick up charges? Yes ☐ No ☐ Cost \$ _____

WASTE

1) How often is the non-recyclable waste picked up?

Weekly (# of times) _____ Monthly (# of times) _____

2) Describe the costs associated with your waste.

Container rentals? Yes ☐ No ☐ Cost \$ _____

How many containers/size? _____

Hauling charges? Yes ☐ No ☐ Cost \$ _____

Tipping fees? Yes ☐ No ☐ Cost \$ _____

OTHER

What are your annual costs for fertilizers, soil and mulch, if any? _____

An MOEE "Certificate of Approval" (C of A) is normally required before starting any type of waste management activity. But, if the MOEE Interim Guidelines are followed by the Industrial, Commercial and Institutional (IC&I) sector, facilities, including government ones, will have no requirement for a C of A. A facility, however, must notify the MOEE district office in their area of their composting plans.

If your facility is transporting food waste from outside for composting, you should check with your local MOEE Office for clarification on the C of A for Air and Transportation.

The following are some highlights from MOEE's guideline requirements for composting:

- The optimum temperature at which the composting material should be maintained, is between 55°C and 60°C. This temperature range allows for both bacterial growth and pathogen inactivation.
- A daily record must be kept of temperatures.
- Oxygen levels must be monitored and be kept above 10 per cent.
- Maximum allowable metal content in the finished compost is specified.

Monitoring is necessary to ensure an environmentally sound operation with a consistent and high quality compost. Analysis and sampling must be established and maintained. Operating and production records must be kept two years past the disposition of the compost.

The following procedures were successful when applied to the Green Workplace demonstration projects.

TEMPERATURES:

Temperatures should be taken on a regular basis to, as closely as possible, approximate the ideal frequency of temperature monitoring for that system.

SAMPLING FREQUENCY:

Feed Material

If organic wastes are generated on-site and source-separated from general garbage, there will be no requirement for analysis.

AMENDMENTS

Amendments only need to be tested if the final compost exceeds MOEE's criteria pertaining to metals, chemicals, and non-biodegradable particulate matter.

FINISHED COMPOST

A composite grab sample of finished compost should be analyzed for all parameters (metals, chemicals, etc.) in these procedures for the first set of compost produced. Thereafter, compost will be sampled and tested on an annual basis for all parameters except PCBs.

Also, if there is a significant change in the source or type of materials which might affect the quality of the compost, the finished compost needs to be tested after the first run and thereafter on an annual basis.

APPENDIX II

MINISTRY OF ENVIRONMENT & ENERGY GUIDELINES FOR MIDSCALE, ON- SITE COMPOSTING PROJECTS.

*In 1992 the
Ministry of
Environment and
Energy (MOEE)
published "Interim
Guidelines" to
streamline the
approval process
and provide some
common rules on
the operation,
maintenance and
testing of leaf and
yard waste
composting.*

APPENDIX III

3Rs GUIDELINES FOR FOOD SERVICES IN RESIDENTIAL AND INSTITUTIONAL FACILITIES

By regularly practicing the 3Rs, institutions can realize significant savings in time and money. Composted waste diverted from landfill can be reused as a soil amendment on site or sold as a marketable product. Simple changes in purchasing and kitchen procedures can reduce the amount of food waste created. And overall costs in waste management budgets can be reduced.

Based on practical experience in institutions, the following guidelines have been suggested by Food Services Managers to save money and reduce waste.

REDUCTION

Proper procurement, inspection, storage and handling of food products can eliminate substantial waste.

- Review methods to reduce the use of individual servings of condiments, etc.
- Use salt and pepper shakers, and jugs of cream or milk.
- When purchasing food products for a kitchen, consider bulk purchasing where applicable.
- Flour, sugar, salt, and cereals are items that can be stored in bulk bins and margarine usually comes in air tight plastic pails.
- Ketchup, mustard, relishes and tomatoes, etc. can be bought in 100 oz. cans or jars.

When bulk purchases or regular order items are received, inspect the goods immediately before storing.

- Dented cans, improperly sealed jars, ripped bags and boxes could be returned to the supplier.
- Ripe fruits and vegetables should be used first to avoid spoiling. If not properly inspected, a few heads of lettuce in the bottom row can spoil an entire box which then ends up in the garbage.
- Small amounts of trimming and washing at time of inspection can keep the product fresh longer and

save time at preparation.

- Potatoes and onions bought in bulk should be kept in cold storage.
- Vegetables, fruits, pickles, shortening and cheeses should be refrigerated once inspected.
- An alternative to fresh vegetables is frozen vegetables, which saves on waste and time when preparing.
- Meats bought in bulk can be cut into appropriate size roasts for menu planning. Industrial freezer bags or wrapping paper can be used to store the meat.
- Consider delivery of milk, breads and eggs on a daily or weekly basis.
- Shred the brown wrapper from meats, egg flats and milk cartons and use as amendment for composting.
- Instead of paying hauling fees to recycle corrugated cardboard, shred it to use as an amendment for composting.

REUSE

STORAGE CONTAINERS

Margarine is usually bought in white plastic pails. Once these pails are emptied, they can be washed and reused as storage containers for vegetables and for freezing baked goods. These containers are especially good because of their airtight lids. They can be used to transport leftover foods to soup kitchens and shelters, and for collecting grease in kitchens.

LEFTOVERS

It is common to have such items as mashed potatoes, vegetables and meats left over from a day's menu. If these items are stored properly in a

refrigerator, contents marked and dated, they can be reused in another day's menu as soups, pastas, casseroles, etc. Leftovers stored and labelled properly can also be given to soup kitchens or shelters.

PRIMARY USE DIVERSION

Primary use is the redistribution of surplus food, in its original form, for human consumption as laid out in the report "Diverting Wet Waste From Disposal: Progress and Action" (see Appendix VI). Primary-use agencies serve food banks, community service shelters, residences, missions, etc.

RECYCLING

Facilities can recycle organic waste through animal feed, onsite composting, central composting (if available), and smaller backyard composters.

By diverting food waste to an on-site composting operation, the facility will realize significant savings. And enhancing recycling programs

has advantages besides cutting down on the waste going to landfill.

- Fewer dumpsters and pickups are required because there is less waste.
- The facility's bins would be odour and rodent free because they do not contain rotting food waste.
- Everyday pickups could be reduced to three or four times per week.
- Container rentals and tipping costs would be reduced with savings up front.
- In some of the large institutions, costs can drop as much as 50 per cent.

Where recycling exists, the Composting Co-ordinator can work with the facility to ensure that all recyclables are being recycled; that the recycling program is cost-effective and that equipment and training is provided where required. Where there is no recycling, the Co-ordinator can work with local municipalities to set up alternative waste-diversion methods.

APPENDIX IV

FORMULA

FOR

PAYBACK

A facility which is considering on-site composting can use this general formula to work out whether it is economically feasible or not.

Volume of waste x operation days x tipping fees = cost to landfill waste

Number of Years' Payback = cost of machine divided by above landfill cost

EXAMPLE

A facility needs a 600 lbs/day unit (400 lbs food waste + 200 lbs amendment)

600 lbs x 365 days a year = 219,000 lbs = 109.5 tonnes annual food waste

Tipping fee per metric tonne = \$120

then cost of landfilling this waste is 109.5 x \$120

= \$13,140.00 per year.

If the proposed composting machine costs \$60,000 then the payback in years is \$60,000 divided by \$13,140 = 4.56 years.

By introducing on-site composting, the facility is likely to reduce the number of waste bins, pickups and tipping at landfill by approximately 50 per cent. If the facility is spending \$40,000 per year on all waste disposal, and composting now saves 50 per cent, then the facility only pays \$20,000 on its waste disposal. Therefore, the \$20,000 saving can be deducted from the price of the above machine (\$60,000) so the payback is reduced as follows:

\$40,000 divided by \$13,140 = 3.04 years payback.

Additional savings can be realized if the facility budgets for fertilizer costs each year, as the finished compost will replace the fertilizer. The facility can also save hauling charges for cardboard if it has a shredder/chipper operation. The shredded cardboard can be diverted to the composting operation as amendment.

The following are some things to consider when tendering for waste haulers and negotiating contracts:

EVALUATING BIDS— SELECTION CRITERIA

- ☐ Does the company have a good track record?
- ☐ Are references supplied?
- ☐ Is a copy of the hauler's 'Certificate of Approval' information supplied?
- ☐ Is the destination of the waste, e.g. Ontario landfill, spelled out?
- ☐ Is there an option to buy bins as opposed to continuing to rent them?

THE CONTRACT

If it is possible, include the following requirements in your contract:

- ☐ waste disposal bins be full (or almost full) before they are collected;
- ☐ weigh bills to verify your invoices;
- ☐ breakdown of costs for waste per tonne, hauling or pickup fees,

and bin rentals
to ensure you
know exactly
what you are
paying for;

- ☐ flexibility to allow renegotiation of contract to add or subtract bins as required;
- ☐ cover possible variations in waste generation due to special events, manufacturing processes, etc. and associated costs;
- ☐ dates to define a fixed term of agreement;
- ☐ Include a clause:
 - that allows either party to cancel the agreement within a set period of time, e.g. 30 days;
 - that states that tipping fees will be automatically adjusted to those equal to the local landfill rate;
 - that states that any increase in fees must be agreed upon in writing by both parties.

APPENDIX V

NEGOTIATING WITH YOUR WASTE HAULER*

* Be sure to involve your legal department in these matters as appropriate.

APPENDIX VI

REFERENCES

MATERIALS

GREEN WORKPLACE

- Composting in Ontario Government Facilities 1993
- Organic Waste Study—Government Residential/Institutional Facilities 1994
- Recycling Directory

REPORTS

- “Diverting Wet Waste From Disposal: Progress and Action”
A Report by the Ontario Strategy Team for Wet Waste Reduction
June 1994 (Section: The Hierarchy of Wet Waste Options).
Available from Communications Branch, MOEE

CONTACT NAMES

THE COMPOSTING COUNCIL OF CANADA

- Dr. Peter Mayboom (613) 238-4014

ASSOCIATION OF MUNICIPAL RECYCLING CO-ORDINATORS

- Linda Varangu, Ben Bennett (519) 823-1990

NOTES

NOTES



3 1761 11548016 2